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ABSTRACT

This is a final report on a series of research studies conducted to determine the effects of videotaped testimony on information processing and decision making in jury trials. The report is divided into the following sections: descriptions of the research methodology and technological aspects of the videotaped stimuli; summaries of eleven studies under two general categories, information retention and trial-participant credibility; a discussion of the general conclusions; and the research team's efforts at grant information dissemination. The research team concludes that use of videotape does not adversely affect juror responses and can even result in higher retention levels. Appendixes provide information on the videotape equipment used and tables of data for both the information retention and the trial-participation credibility studies. (RL)

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EFFECTS OF VIDEOTAPED TESTIMONY ON INFORMATION PROCESSING AND DECISION-MAKING IN JURY TRIALS

Final Report

December, 1975

NSF Grant #GI 38398

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INTRODUCTION

The atmosphere in a Department of Communication, particularly one devoted to the development and testing of communication theory, encourages almost endless discussions of situations in which such development and testing can be brought to bear. In dead academic seriousness or in informal interactions, members of the Department relentlessly pick things apart to see how they work.

It was in this atmosphere that the original members of the legal communication research team assembled a proposal to evaluate "The Effects of Videotaped Testimony on Information Processing and Decision-Making in Jury Trials." Our curiosity about videotape in the legal system was born of several parents: the opportunity the project afforded to test certain communication theories in a real world context; our observations, in other studies dealing at least peripherally with the legal system, that communication within was often handicapped by language and procedure; and the snowballing use of videotape technology in education, in government - in almost anything which had the prerequisite something to tape and someone to watch. Preliminary investigation showed us that although courtroom use of videotape dotted the map, no thoroughgoing evaluation had yet been attempted to allow legal policy-makers to set standards for use. Thus, when we embarked upon this project, videotape in the courtroom was variously viewed as a salvation, a gimmick, a devious way to displace court reporters, and an ominous portent of a legal electronic circus. All of these points of view had court rules of procedure to match. Wading laboriously through opinions, accusations, and claims, we arrived finally at the questions we wanted to answer concerning this technology: Did its use or its nature modify the information it was transmitting in the eyes of those who must absorb it, namely, jurors? If so, how? More specifically, might such factors as verdict or retention of trial-related information be affected by the use of videotape? We proposed a series of studies designed to divulge the answers to such questions.

In its broadest sense, this program of research has sought to examine some of the possible behavioral effects of using videotape technology in courtroom trial situations. The proposed research program originally sought answers to three general questions: (1) What are the effects of the stricken testimony process on jurors' verdicts and jurors' perceptions of the credibility of the contesting attorneys? (2) How does the use of videotaped depositions and testimony affect the amount and type of information retained by witnesses and by jurors' and jurors' perceptions of witness credibility?

As a result of initial discussions with members of the project's Advisory Panel, as well as other persons from the legal sector, a fourth question was added to the program of research: What, if any, are the differences in juror response to live and videotaped trials? In other words, we also investigated whether the medium of presentation itself influences such factors as jurors' verdicts, their perceptions of the contesting attorneys, the amount of information they retain concerning the case, and their motivation and interest in participating in the trial.

We have conducted the studies that seek answers to these four questions over the past two years. In this, our final project report, we have grouped our studies according to major findings which will be identified in this section antecedent to the study descriptions found in Section III. Section II of this report describes our technological orientation and the videotape stimuli from which the studies were drawn. We refer interested parties to Progress Reports I (Miller & Siebert, 1974) and II (Miller & Siebert, 1975) for a chronological orientation to our work.

Findings for the whole series of project studies fall into two major areas. For each of the major findings, the studies described represent the manipulation of variables that could likely affect those findings. For the purposes of this report, these findings are defined as Information Retention findings and Trial Participant Credibility findings.

As in previous reports on this project, we have attempted to be as lucid as the material allows in describing our studies and our results. While we have included methodological and statistical discussions where pertinent, we have, as before, elected to step outside social science argot whenever possible in deference to organization and the diverse nature of our audience. Statistical data, other tables, figures, and diagrams related to the studies described in Section III, appear in the Appendices to this report.

Section IV of this report is a discussion of our general conclusions in relation to the major findings areas we have defined. Section V details the research team's efforts at grant information dissemination; we have included herein a short description of our subjects' responses to participating in research of this nature.

TECHNOLOGY

Generally speaking, the grant team hewed to the basics in videotape equipment and did not succumb to the tantalizing array of intricate technology that now characterizes the industry. We believed that if, in fact, videotape gained general acceptance in the legal system, relatively simple systems would be used rather than highly complicated, expensive ones. In all cases, then, except where special equipment modifications were necessary for research purposes, we used a Sony 1/2" videotape system in either color or black-and-white, depending on the study being conducted. (See equipment inventory, Appendix A).

TAPING STIMULI

Our series of project studies drew from the six stimuli described in this section. In all cases, our decisions on camera angles and camera movement were based on how we struck the balance between realism and experimental control. As mentioned before, all our taped stimuli were recorded by Sony 1/2" videotape recorders in either color or black-and-white, depending on the studies that would draw from them. Modifications in this basic camera-recorder-monitor system are noted for each the stimuli for which they were effected.

Stimulus I: Recreated Trial - Flint, Michigan, November, 1973

Derivative Studies:

- Live versus videotaped testimony
- Full screen versus split screen presentation
- Effects of inadmissable evidence
- Replication of inadmissable evidence study

This stimulus, our first and certainly our most complex in terms of production, was produced as one would produce a dramatic television program. We hired a dramatic director who auditioned, cast, and coached the actors in their roles as attorneys and witnesses. The substance of the stimulus was the transcript of an actual trial, edited and modified to suit the various purposes of the research. For a more detailed description of pre-production planning, see Miller and Siebert (1974).

Prior to selecting the equipment system to be used in taping the trial, we reviewed and studied the systems that were presently in use and also those systems which had previously been proposed. Based on this review, we formulated a set of objectives believed to be appropriate to an operational system as well as our experimental system. These objectives were as follows:

(1) The videotaped material should be rich enough to hold the attention of the viewers.

(2) The videotaped material should allow all relevant participants to be seen, heard, and identified.

(3) The videotaping should be unobtrusive to minimize disruption of the court routine.

(4) The videotaping format should be static to avoid the possibility of editorializing.

(5) The system should be based on equipment equal in complexity and cost to the equipment most likely to be used in actual courtroom situations.

Given that some of these objectives were competing, our goal in selecting an equipment system was to optimize this set of objectives.

We decided, on scientific grounds, that our recording system for this trial should not have the editorializing effects of camera tilts, pans or zooms. That is, for this particular stimulus, we decided that camera movement would lend a bias that we could neither predict nor control, so we opted for fixed cameras showing three courtroom perspectives.

Based on meetings with numerous technical consultants, we determined that it was possible to record and play back different courtroom perspectives without the problems associated with multiple recorders. By using one recorder to record a split-screen image of the trial proceedings, we could provide different viewing perspectives without the difficulties of recorder synchronization. The split-screen technique involved partitioning the television screen in such a way as to show three different perspectives simultaneously, somewhat like the techniques used to broadcast national sports events.

As designed, this system allowed the synchronous recording and playback of three perspectives on the same television screen. One perspective was located in the lower half of the screen and showed the entire active area of the courtroom. The second perspective was located in the upper left quarter of the screen and showed only a close-up of the witness that was presently in the witness box. The third perspective was located in the upper right quarter of the screen and showed only the bench and the questioning attorney (see Figure 1, Appendix A). It was felt that this system, in addition to being technically feasible, would hold the attention of the jurors while allowing them to see, hear, and identify all relevant participants in the courtroom.

Since this system was to some degree experimental, we decided that a more conventional alternative system should be additionally developed to allow for: (1) secondary backup recording, and (2) the potential for a subsequent study of the effects of the split-screen technique. For these reasons, we also used a system involving one camera and one recorder showing the entire critical area of the courtroom on one full television screen.

As mentioned earlier in this section, we believed that all equipment selected should be equal in complexity and cost to the equipment most likely to be used in actual courtroom situations. For this reason all equipment used was off-the-shelf equipment rather than professional models. Videotape recorders were one-half inch monochromatic recorders which conformed to the conventional EIAJ standard. All playback was done on conventional television sets as opposed to more expensive studio monitors. The cameras and the supporting video and audio equipment were of the variety commonly used in high schools and colleges for educational purposes.

The equipment was positioned as unobtrusively as possible given the constraints of the courtroom. All cameras were placed on fixed, unmanned tripods. Two of the cameras were placed in the center of the courtroom along the rear wall elevated on a small table. The two remaining cameras were placed seven to 10 feet from the side walls immediately in front of the bar. The audio equipment permanently installed in the courtroom was used, with the addition of two microphones placed at the litigant's table. (See Figure 2, Appendix A).

All videotape recorders, monitors, split-screen devices, and audio mixing equipment was located in the judge's chambers behind the courtroom. At no time were technical personnel visible to the jury.

All recording equipment was set up the night before the trial and was used that evening to tape a version of the trial containing six additional items of inadmissible material. The equipment was set up to allow for the simultaneous and separate recording of the trial utilizing both the split screen and full screen systems. (See Figure 3, Appendix A).

On the day of the trial, the jurors were brought into the courtroom with all equipment positioned and unmanned. After a brief explanation of why the equipment was present, the judge began the trial and the taping began. As mentioned earlier, all technical personnel and control equipment were located in the judge's chambers outside the view of the jurors. Only during breaks in the proceedings, when jurors were not present in the courtroom, were technical personnel allowed in the courtroom to make any necessary adjustments in the equipment. Four technicians manned the equipment and carried out continuous adjustments of both the video and audio components of the system.

Stimulus II The Strong, the Weak and the Modal - East Lansing, Michigan, July, 1974

Derivative Studies:

Juror information retention I
Replication of juror information retention I
(without modal witness)

The script material for this stimulus was a deposition selected in consultation with several members of our Advisory Panel. The deposition concerned the details of an industrial accident as recalled by the witness. A professional actor portrayed the witness in his strong, weak and modal demeanors; two actual attorneys played counsel for plaintiff and defendant. The deposition was approximately 35 minutes long.

In taping this stimulus, we modified our usual procedure by utilizing an actual studio setup, provided by the MSU Department of Telecommunication. We intended to tape in color and did not number color cameras among our own equipment; using the studio allowed us to produce a high-quality color tape in a setting lighted and designed to that end. Our single color camera was fed through the studio switcher (a small professional-quality special effects generator), which allowed us to fade from black into our stimulus and from the stimulus to black at its conclusion. We used our Sony 8600 1/2" color recorder to tape.

The witness and two attorneys were placed on a riser at a table in the studio, thus composing our stimulus "set". They were lighted as would be a routine television production, utilizing key and fill light to maximize color resolution and minimize shadow and glare. The witness sat behind the table facing the camera; the attorneys at the sides, facing each other across the table. Their voices were all picked up by separate lavaliere microphones, the gains of which were monitored at the audio board to equalize volume and minimize extraneous noise. After an establishing shot to show the participants in spatial relation to one another, the camera zoomed slowly in to a medium close shot of the witness, which it held until near the end of the deposition. At this point, the camera pulled back again to show the three persons before the picture faded to black.

Stimulus III: Emotional and Unemotional Delivery of Testimony - East Lansing, Michigan, August, 1974

Derivative Studies:

Galvanic skin response Study I
Replication

Having arrived by this time at some guidelines for stimulus taping, we were able to plan and execute this next production in a far shorter time period than that which had characterized our earlier efforts. We were fortunate in having had high quality technical assistance for the far more difficult taping of Stimulus I in Flint; in our subsequent taping efforts, we were able to rely more and more on the knowledge of our own research team, thanks greatly to that early professional assistance. Because the studies to be derived from Stimulus III required the action to take place in a courtroom setting, we moved our equipment to the East Lansing District Court.

A script was written specifically for this experiment. It included the cross examination of both the father of the plaintiff and the plaintiff herself and dealt with a personal injury suit resulting from an automobile accident. Both witnesses were professional actors. They memorized their lines and used the same words during both tapings.

The cross examination of the male witness was conducted by an attorney. This attorney also reviewed the script to assure that the transcript conformed to proper trial procedure. The female witness was examined by a member of the grant team. Both "attorneys" were off camera. The tapes consisted of close-up shots of the witnesses only.

Because we taped this stimulus in color on location, we retained the services of professional video technicians to operate the color camera and monitor our taping system to maintain good color resolution and place supplemental lighting where needed. As in Stimulus II, we used a single color camera feeding our Sony 8600 recorder, but without intermediate channeling through a special effects generator. Conventional lavaliere microphones were used. Two versions of the testimony were taped: an emotional version and a non-emotional version, to fulfill the requirements of the study design.

Stimulus IV: Recreated Trial Segment - Flint, Michigan, November, 1974

Derivative Studies:

Juror information retention II

A single-witness, 1 1/2 hour segment from an actual trial involving a will contest composed the substance of Stimulus IV. As with Stimulus I, taping took place in an actual courtroom before jurors who viewed the trial segment live as it was being videotaped. A two-camera color recording system was implemented for this stimulus: one camera provided a medium close shot of the witness on the stand; the other, a wide shot of litigants and counsel, examining attorney, witness, and judge. Color and shot composition for each camera were initially set the cameras were then left fixed and unmanned during the course of the testimony. The camera signals fed into our Sony 8600 1/2" video recorder via a camera selector that allowed us to switch between the two available shots depending on the action in court. A team of professional video technicians assembled and adjusted the recording system, monitoring color resolution on the two cameras periodically during the stimulus taping. They also set supplemental lighting and monitored the output of the stand microphones (one each for witness, judge, and questioning attorney, two on litigants' table) through a simple microphone mixer which subsequently fed into the recorder. The witness and plaintiff's attorney were professional actors; defense attorney and plaintiff, research team volunteers. The judge and bailiff played themselves.

Stimulus V: Police Training Tape - Peoria, Illinois, October, 1974

Derivative Study:

Witness information retention I

In a set designed to resemble a typical living room, two professional actors portrayed a marital squabble resulting in an amount of physical violence between them. The argument triggering the violence involved such topics as finances, children, and extra-marital activities, all of which would be treated as information that subjects viewing the tape had the opportunity to absorb. A simple one-fixed-camera taping system was employed for this stimulus. We were able to use our own black-and-white equipment, including a Sony 3210 camera and tripod, a Sony 3650 video recorder, and a black-and-white monitor. Strategically placed standing microphones picked up the dialogue which was fed through a microphone mixer (permitting us to monitor volume) and then into the recorder. Because the actors moved frequently on the set, lavaliere microphones were impractical as they limit mobility to the length of the cable and would easily pick up the extraneous noise of rapid movement as well. This stimulus tape was approximately 10 minutes long.

Stimulus VI: "Liars and Truthers" - East Lansing, Michigan, November, 1974

Derivative Study:

Detecting Deception

The participants who appeared in this stimulus were volunteer students from the MSU School of Criminal Justice who had been instructed by the researchers to either lie or tell the truth in response to questions about a series of slides that was flashed before them out of video camera range. The questioner, also off-camera, would ask the students about the slides (his questions audible on the tape); the students' verbal and nonverbal responses to these questions were videotaped and composed the substance of this stimulus. Again we utilized MSU Department of Telecommunication studio facilities to allow us to tape in color without the inconvenience of location work. Two separate color recording systems were used, one to provide a close shot of the subject's head only, one to provide a longer shot of the head and body. The cameras were fixed and unmanned throughout the stimulus taping, except when technical adjustments were made to optimize color resolution. Camera signals were fed through the same switcher used in Stimulus II, although the fade/dissolve option was not used between subjects; tape editing was completed later by members of the research team. Camera signals in both recording systems were fed into Sony 8600 1/2" color recorders. As before when more than one microphone was used in a studio setting, the microphone outputs (from standing microphones) for subject and questionner fed through the audioboard to the tape machines. Typical set lighting for color television was employed, as in Stimulus II.

A professional video technician ran all recording equipment and adjusted the close-up camera for each subject. He also controlled the film chain operating in the control room through which the slides were shown to the subject on a television monitor. Both cameras were about 25 feet away from the subject and sitting next to each other, thus keeping the angle of the two shots relatively constant. The close-up picture was achieved with a telephoto lens. This camera placement resulted in camera shot angles from slightly to the left of where the officer was sitting. Thus in looking at the officer as they answered questions, subjects were looking slightly to the left of the cameras. The television monitor on which the slides appeared during the emotional segments was sitting on an eight-inch high platform in front of the officer's desk and slightly to his right. The subject thus had to look to the officer's left and slightly down to watch the slides. The monitor was 12-13 feet from the subject. The officer could not see the monitor from where he was sitting and consequently from the subject's point of view (and in reality) he did not know which slides were being shown when.

As noted in the introduction to this report, results from the series of studies we have conducted during this program of research relate either to Information Retention or Trial Participant Credibility. We maintain that, in turn, both areas of findings are intimately related to verdict and award. In some cases, studies described under one major finding area would also relate to the other. We have grouped them under the major findings to which they most strongly relate. Please note, however, that our first study (The Effects of Live Versus Videotaped Trial Presentation) is related closely to both major findings.

The stimuli designated in each study description follow the numbering system introduced in the Technology section of this report (Section II).

Tables, charts and other statistical data related to those studies under Information Retention can be found in Appendix B; those for Trial Participant Credibility can be found in Appendix C.

INFORMATION RETENTION

The Effects of Live versus Videotaped Trial Presentation (Stimulus 1)

Although we had no single set of rigorously derived theoretical expectations concerning what differences, if any, to expect in juror responses to live and videotaped trials, several lines of thinking suggested that it would be useful and interesting to examine this question. At a very global level, the writings of people such as Marshall McLuhan (1964) stress the hegemony of the medium itself as the primary message in communication transactions: McLuhan argues that the medium has a pervasive influence on the way we process information and the perceptions we develop of the external world. To be sure, most of his insights concern potential differences between alternative media--e.g., print versus television--rather than possible variations in media-mediated as opposed to directly experienced events. Still, his ideas are provocative and do suggest that the addition of any intervening medium to a communication transaction might have some impact on the way information is processed and judgments are formed.

At a less abstract level, the complexity of the stimulus field to which jurors are exposed is drastically reduced by the use of videotape. During a live trial, the juror may be attending to the verbal and nonverbal behaviors of the witness, the facial expressions of the judge or defendant, a conversation between one of the attorneys and his client, the murmured remarks of spectators, the attractive legs of the female juror seated next to him, or a host of other stimuli. Although we attempted to create a taping system that would capture much of this detail and richness, it seems apparent that with the use of tape some reduction in the stimulus field of jurors is inevitable.

The major problem, however, lies in specifying the extent and direction of differences, if any, that might occur in juror responses to live and videotaped trials. Suppose, for example, that we are correct in assuming that the complexity of the jurors' stimulus field is reduced when videotape is used. How might such factors as the verdict itself, the amount of information the juror retains, his perceptions of the trial participants, and his interest and motivation in serving as a juror be influenced by this reduction? It seemed to us that plausible arguments could be made for either, or several, possible opposing outcomes. Consider, for instance, the question of information retention. At first glance, it may appear that restriction of the stimulus field should facilitate juror retention of information. From distraction viewpoint, this assumption is warranted. The many competing stimuli present in a live trial may divert jurors from the testimony of witnesses, the questions of attorneys, or the rulings of the judge, thus reducing the amount of information retained. To the extent that this occurs, elimination of these distracting stimuli by means of videotape should result in better retention of information by jurors.

But consider the other side of the coin. From a motivational standpoint, it is possible that the rich milieu of the live trial is better calculated to hold jurors' interest. Extensive viewing of a videotaped trial may become boring and monotonous, causing jurors' attention to lag. If this is so and if interest is necessary for retention of information, we would anticipate that the live trial would result in better retention of information on the part of jurors.

Because of the numerous possible conflicting predictions that we might have generated, this study was question-centered, rather than hypothesis-centered. Specifically, we investigated the following major questions:

1. Are there differences in attribution of negligence between jurors exposed to a live trial and jurors exposed to a videotaped trial?

2. Are there differences in the amount of award between those who viewed the live trial and those who viewed the videotaped trial?

3. Are there differences in perceptions of attorney credibility between jurors exposed to a live trial and jurors exposed to a videotaped trial?

4. Are there differences in retention of trial-related information between jurors exposed to a live trial and jurors exposed to a videotaped trial?

5. Are there differences in motivation and interest between jurors exposed to a live trial and jurors exposed to a videotaped trial?

Procedures

Live Condition: Fifty-two jurors from the Genesee County Circuit Court, Flint, Michigan, November jury panel served as subjects for this phase of the study on their final day of jury service. These jurors comprised the entire November jury panel with the exception of those not reporting for jury duty on that particular day and those who were serving on other jury panels. The trial was conducted in a manner as closely conforming to normal trial procedure as was possible. The judge explained that the abnormally large size of the jury was to allow a group of researchers from Michigan State University, who were interested in jury size, to analyze the results of the trial. The jurors were admonished that they were the jurors in the case, and that the decision they would later be called upon to make would be the binding decision in the matter. Because of the large jury size, the judge explained, voir dire questioning would be accomplished by means of a written questionnaire.

After the questionnaire had been completed by the jurors and the attorneys had examined them, four jurors were peremptorily dismissed. The judge then explained that the presence of videotape recording cameras in the courtroom was for the purpose of making a record of the trial for possible later appeal or review.

The trial proceeded, in 50 minute segments, through the judge's instructions to the jury. Visual exhibits were distributed at the appropriate times. Recesses were taken after each 50 minute segment. After the trial had ended, the jurors were taken to the jury assembly room, where an experimenter administered the "jury size" questionnaire.

After completing the questionnaire, all jurors were completely debriefed. No suspicion about the reality of the trial was uncovered either orally during the debriefing session or on the questionnaires. Personal history forms completed prior to jury service were obtained for purposes of analysis of demographic data.

Jurors did not deliberate, since for the purposes of this study, we were interested only in what jurors bring to the jury room with them. Questions involving deliberation are compelling and important, but they are beyond the scope of the present research. Furthermore, since the research occupied almost an entire jury day, deliberation would have required recalling the jurors for another day of jury service, which would have fallen on a Monday.

Videotaped Condition: Subjects were 45 jurors from Genesee County who viewed the videotaped trial on the last day of their jury service one month later. The same research personnel were used, and as in the live trial, the two attorneys were present to conduct an ostensible written voir dire and to dismiss four jurors. The single variation in procedure was that the trial was viewed by jurors on six television monitors placed in the spectator section of the courtroom, rather than being seen live. The judge's preliminary instructions to the jury addressed this difference, explaining the split-screen system and admonishing the jurors that, although the trial would be viewed on television, it was fully as important as any trial they had sat on during their term of jury service. Visual exhibits were distributed at the appropriate times. At the conclusion of closing arguments, the judge entered the courtroom and read instructions to the jury.

As was the case with the live presentation of the trial, jurors were taken to the jury assembly room, where the experimenter administered the "jury size" questionnaire. After completing the questionnaire, all jurors were completely debriefed. Again no suspicion on the part of any juror as the unreality of the trial was either voiced or noted on questionnaires, and again, jurors did not deliberate.

Measuring Instruments: The goals which guided the construction of the measuring instruments for the present research centered on three key considerations: (1) a format which would yield maximum information, (2) a minimally complex set of measures, and (3) a highly structured set of measures. Consideration (1) clearly is necessary in order to answer the questions posed by the research. Considerations (2) and (3) deal with the attempt to obtain data that would be highly reliable, and therefore highly generalizable to all jurors.

The research questions posed thus far concern five main variables, and consequently, the development of the questionnaire dealt with measures designed to deal with each of these questions: (1) Was the defendant in fact negligent, and if so, was the plaintiff guilty of contributory negligence? (2) If the verdict necessitated a monetary award to the plaintiff, what was the jurors' judgment as to the magnitude of such an award?

(3) How did the jurors evaluate the credibility of the attorneys? (4) How much substantive information about the trial did the jurors retain? and (5) How motivated and interested were the jurors?

The negligence measure was derived from the presiding judge's instructions to the jurors. The measure follows closely from the substance of the judge's remarks. Was, in fact, the defendant, Frank Clark, guilty of negligence in the case under consideration? Second, if so, was the plaintiff, Marjorie Nugent, also guilty of contributory negligence? The measure consists of a direct question about the jurors' evaluation of each of these questions. There are three possible responses: (1) Frank Clark was not negligent; (2) Frank Clark was negligent, but Marjorie Nugent was also negligent; and (3) Frank Clark was negligent, and Marjorie Nugent was not guilty of contributory negligence.

The award measure was also derived from the presiding judge's instructions to the jurors. If a juror found Frank Clark guilty of negligence, and Marjorie Nugent not guilty of any negligence (3 above), then that juror was required to specify the amount of money due Mrs. Nugent for pain and suffering. Given the contingencies of this particular trial, the juror was allowed to award Mr. Nugent a maximum of $3,136 and Mrs. Nugent a maximum of $42,500. Presented with these instructions and limitations, the juror responded by writing his or her judgment of a just award for both Mr. Nugent and Mrs. Nugent, which could range from $0.00 to the maximum figures cited above.

There was a measure of credibility for both the plaintiffs' attorney, Mr. Simmons, and the defendant's attorney, Mr. Albright. Both measures consisted of a set of 15 semantic differential scales. A semantic differential scale is formed by separating a set of bipolar adjectives by a line, which is divided into seven segments. For example:

bad _____:_____:_____:_____:_____:_____:_____ good

The jurors' task was to place a check over the one line segment which best expressed his or her opinion of each attorney.

The retention measure consisted of a 40 question examination, made up primarily of multiple choice and true-false items, but also containing some "fill in the blank"-type items. These questions were selected from a larger set of items, originally written to test retention. This larger set was edited by pretesting the items on undergraduate Communication 100 students at Michigan State University, who were read a portion of the trial and then administered the appropriate items. The value of an item was judged on the basis of the reliability of the item; i.e., its consistency of measurement. This approach suggests two sub-criteria: (1) difficulty; i.e., what proportion of persons correctly answered the item; and, (2) discrimination; i.e., did the persons who gave correct answers to particular questions do better on the test as a whole than those who gave incorrect answers. The items of highest reliability were chosen for the questionnaire. Finally, the chosen items were distributed approximately equally over the duration of the trial.

The measurement of juror interest and motivation also consisted of a set of semantic differential scales. These scales were of the same structure as those used to measure attorney credibility, however, they contained different bipolar adjectives. These adjectives were chosen for the specific purpose of tapping the motivation and interest of the jurors.

Results and Discussion

For all statistical tests the .05 level of significance was employed. Analysis of the data yielded the following results:

Question 1: When examining the possible effects of the medium of presentation on juror attributions of negligence, there were several ways that the verdict measure could have been analyzed. We had the choice of looking only at clear negligent or not negligent decisions, considering contributory negligence on the part of the plaintiff as a third category, or pooling contributory negligence with decisions of negligent and/or not negligent. Although we believe that the best grouping consists of a three step sequence (not negligent-both negligent-negligent), we have grouped and analyzed the data on juror attributions of negligence in all four possible ways, both in this study and in subsequent studies described in this report.

Table I (Appendix B) summarizes the frequency of each type of verdict for jurors in the Live and Videotaped Trial conditions. Analysis of these data revealed no evidence that the mode of presentation influenced jurors' attributions of negligence. For all four analyses the obtained chi squares are nonsignificant, although in some instances the observed values approach significance. We are still investigating possible effects of sample differences in such variables as age and education on the attribution of negligence measures. We know such differences exist, for instance, age and education, both of which are correlated with the attribution measure, are somewhat different for jurors in the two trial conditions.

Question 2: In analyzing the award data, we used the mean awards to both Mr. and Mrs. Nugent granted by all jurors in the Live and Videotaped Trial conditions, including those jurors who did not stipulate an award. For Mr. Nugent, the mean award was $932 in the Live Trial condition and $1,307 in the Videotaped Trial condition, while for Mrs. Nugent the mean award was $6,760 in the former condition and $8,322 in the latter. Comparison of the mean awards granted to Mr. Nugent by jurors in the two conditions yielded a t of 1.25, while the t obtained for the comparison of Mrs. Nugent's award was <1. Since neither of these values approaches significance, there are no grounds for concluding that the type of presentation influenced the amount of award received by the plaintiffs.

One precautionary note should be added to the interpretation of this finding. Obviously, the dollar awards for both plaintiffs are larger in the Video-taped Trial condition. At first glance, it may appear that these differences should be significant, but the range of awards given within each condition varies so much that it militates against significant differences between conditions. This proved to be a persistent problem when dealing with the award data. To use common statistical tests, it is desirable that the data cluster around some central point of the distribution. Thus, if a mean award was $20,000, the majority of jurors should group into a range of $18,000-$22,000, a few others in the ranges $15,000-$18,000 and $22,000-$25,000, and very few into the categories of less than $15,000 or more than $28,000. Unfortunately, the design of the legal system does not take social science into account. The award procedure ensures a very different distribution of awards: many jurors award the plaintiff nothing, while many others give extremely high awards. Relatively few awards fall in the middle. In subsequent analyses, we hope to develop procedures for dealing more sensitively with data that are distributed in this fashion.

Question 3: There is no evidence that the medium of presentation had a significant impact on jurors' perceptions of attorney credibility. The plaintiffs' attorney, Mr. Simmons, received a mean credibility rating of 5.42 in the Live Trial condition and a rating of 5.27 in the Videotaped Trial condition, a difference that resulted in a non-significant t of <1. In a similar vein, Mr. Albright, the defendant's attorney, received a mean credibility rating of 5.61 in the Live condition and a rating of 5.53 in the Videotaped condition, a difference that also produced a t value of <1. Since a maximally favorable rating on the scale used is 7.00, both attorneys were perceived as highly credible.

It is tempting to conclude that these results should quiet the fears of any lawyers who anticipate a loss in their courtroom effectiveness due to the adoption of videotape. Such a conclusion must be treated with caution. As we indicated earlier in this report, the courtroom skills of both attorneys probably exceeded those of the typical trial lawyer. Moreover, both are actors with considerable experience in the television and film media. Whether this same degree of relative effectiveness holds for attorneys without extensive media experience remains a question for further research.

Question 4: Jurors' retention of trial-related information did not appear to be significantly affected by the medium of presentation. The mean retention score for jurors in the Live Trial condition was 31.1, while the score for jurors in the Videotaped Trial condition was 29.3. The resultant $\underline{t}$ of 1.37 for the comparison of these means was not significant.

We regard these retention findings as preliminary and tentative. As indicated earlier, there are differences in educational level between jurors in the two conditions; and as might be expected, educational level is positively related to retention ($\underline{r}$=.52). We are now conducting more extentive analyses that should make it possible for us to arrive at more precise statements about the relationship of the medium of presentation to retention of trial-related information.

Question 5: Apparently, juror interest and motivation did not vary significantly as a function of watching a live or videotaped trial. The mean rating of interest and motivation for jurors in the Live Trial condition was 4.51, while the mean for jurors in the Videotaped Trial condition was 4.24. A comparison of these means resulted in a non-significant $\underline{t}$ of 1.12. Since the midpoint on the scale used to measure juror interest and motivation is 3.50, we may conclude that both groups of jurors were moderately motivated and interested.

The fact that the two conditions do not differ significantly suggests that there is nothing inherently less interesting or motivating about watching a videotaped trial, rather than its live counterpart. This conclusion is buttressed by interviews with individual jurors from both conditions. By and large, jurors in the Videotaped Trial condition were as favorably disposed toward their task as jurors in the Live condition, and some instances, they were more enthusiastic.

Juror Information Retention I (Stimulus II)

This study investigated the effects of monochromatic and colored videotape presentations and the strength of witness testimony on the amount of information retained by jurors and their perceptions of the credibility, authoritativeness, and character of the witness.

Regarding the mode in which a deposition is presented, research has suggested that monochromatic and colored modes of presentation may be conceived as different types of stimuli which may elicit different responses from viewers; i.e., each mode may be more conducive to transferring different quantities and different types of information. For example, within an advertising context, viewers tend to retain more details from a colored presentation, but retain principles to a greater extent when material is presented monochromatically (Kumata, 1960; Schaps & Guest, 1968). Similarly, Katzman (1971) found that a color presentation results in the retention of peripheral information to a greater extent than central information whereas monochromatic presentation results in the retention of more central information than does color presentation.

Additionally, certain witness characteristics may have different effects upon the amount of juror information retention and the perceived credibility, authoritativeness, and character of the witness. Moreover, these effects may vary with respect to the mode of presentation; they may interact with the presentational mode. For example, if the witness is a "strong witness"--i.e., assertive, attentive, and unhesitant--then the jurors may be more apt to retain the witness' testimony and they may be more likely to perceive the witness as credible, authoritative, and/or of high character. On the other hand, if the witness is a "weak witness"--i.e., uncertain, fumbling, inattentive--then jurors may be less likely to retain the witness' testimony and to perceive the witness as credible, authoritative, and/or of high character. In addition, these outcomes may result for one mode of presentation, but not for the other.

Procedures

In order to investigate the relationship of mode of presentation and type of witness, a study was designed in which three witness types were shown in either a monochromatic or a color mode of presentation.

The stimulus consisted of a videotaped recording of a deposition which was selected in consultation with legal advisors. The content matter of the deposition concerned an industrial accident. A professional actor played the role of the witness, and two actual attorneys took the attorney roles. The setting consisted of the three men seated at a small table.

The type of witness manipulation consisted of the same actor playing three different roles. In the Strong Witness condition, the witness was assertive, attentive, and unhesitant. In the Weak Witness condition, the witness exhibited certain cues to suggest that he was uncertain, fumbling, inattentive, and hesitant. In the Modal condition, the witness merely read the testimony, simulating the situation in which a deposition is read in court by a third party. The testimony was identical in each condition.

Subjects for this experiment were 198 volunteers from the Lansing-East Lansing area, who were paid five dollars for their participation. The setting for the study consisted of a fairly large room with comfortable seating. Three monitors were placed in the front of the room so that every Subject could clearly see the stimulus. An additional audio speaker was placed in the front to facilitate sound quality. Once the Subjects were seated a brief introduction was delivered.

After the videotape was concluded, the Subjects were served refreshments. Subsequently, they returned to their seats and filled out the questionnaires. Following the completion of the questionnaire Subjects were debriefed.

The questionnaire utilized in this study contained a set of information retention items, the credibility scales of Berlo, Lemert, and Mertz (1969-70), McCroskey's (1966) authoritativeness and character scales, and certain demographic questions. The information retention items were multiple-choice items with one correct answer and four foils. These foils were ordered with respect to degree of correctness, thus yielding five-point, quasi-interval scales.

Results

Initially, the validity of the witness manipulation was pretested. 26 Michigan State University undergraduates were shown 12 minute excerpts from the beginning of each of the three conditions. They were then instructed to rank order the tapes according to how strong, assertive, and confident the witness appeared to be, with a rank of one equalling the most strength, assertiveness, and confidence. The measures of central tendency for these data are presented in Table II, Appendix B. The data clearly support the efficacy of the strong witness manipulation. The other two conditions, however, cannot be so clearly differentiated; depending upon the measure of central tendency, the order of witness strength is variable. The problem may be due to the inability of the subjects to rate the modal witness on factors of strength, assertiveness, and confidence.

Analyses of variance were performed on the data to assess the effects of the manipulations on the dependent variables. A significant main effect was found for the type of witness manipulation on information retention, both when information retention was construed as a continuous measure and as a dichotomous measure. In the former case, incorrect responses were scaled as to their relative degree of correctness; in the latter, they were scaled either correct or incorrect. Neither the main effect for mode of presentation nor the interaction was significant for either measure of retention.

Table III (Appendix B) contains the means for the continuous information measure for subjects in the six conditions as well as the summary of the two factor analysis of variance. Subsequent t tests revealed that the difference between the Strong and Weak Witness conditions was not significant (t = < 1; df = 64). Subjects in both the Strong and Weak Witness conditions retained significantly more information than did subjects in the Modal conditions (t, Strong vs. Modal = 2.57; t, Weak vs. Modal = 3.31; df = 64; p < .05, two-tailed).

The same pattern of results was obtained for the dichotomously scaled information measure (Table IV). Again, the Strong and Weak Witness conditions did not differ (t = < 1; df = 64), while both the Strong and Weak Witness conditions retained significantly more information than the Modal condition (t, Strong vs. Modal = 2.91; t, Weak vs. Modal= 3.37, df = 64; p .05, two-tailed). Thus, regardless of how information was scaled, subjects in the Strong and Weak Witness conditions retained significantly more information than subjects in the Modal condition, but the two former groups of subjects did not differ significantly from each other.

Analysis of variance was also used to assess the effects of the experimental manipulations on witness credibility. The mean credibility scores and a summary of the analysis of variance are found in Table V. (Appendix B). A significant main effect was observed for the type of witness manipulation. Moreover, the Witness Type by Mode of Presentation interaction was also significant. Examination of the pattern of means suggests that the significant interaction resulted from the fact that the strong and weak witness were perceived as more credible when presented in color, while the modal witness was perceived as more credible when presented on monochromatic videotape. Subsequent t tests revealed that the main effect for Witness Type resulted from the following ordering of credibility ratings: The strong witness was perceived as significantly more credible than either the modal (t = 4.18; df = 64) or the weak (t = 7.07; df = 64), while the modal witness was perceived as significantly more credible than the weak (t = 2.86; df = 64). Thus, the credibility ratings are consistent with the manipulation of witness type.

Analysis of variance was also used to test the effects of the experimental manipulations on perceptions of witness authoritativeness (Table VI, Appendix B). A significant main effect for the type of witness manipulation was observed. As with credibility, the strong witness was perceived as more authoritative than either the modal (t, Strong vs Modal = 2.82; df = 64, p < .05) or the weak (t, Strong vs Weak = 3.24; df = 64; p < .05). However, authoritativeness ratings for the weak and modal witness did not differ significantly (t = < 1). There were some differences across modes of presentation but none were sufficient to produce a significant interaction effect.

Finally, an analysis of variance to test the effects of the experimental manipulations on charter scores and the analysis of variance summary for charter are found in Table VII (Appendix B).

Juror Information Retention I: A Replication (Stimulus II)

The study concerning strength of witness and medium of presentation was replicated.

Procedures

There were four procedural differences between the original study and this replication:

First, the "modal" witness condition was omitted. This decision was made for two reasons: first, we considered the condition to be unrealistic, in that there is no circumstance today where a deposition is read into the record on videotape; second, we found in the original study that the subjects were unable to respond consistently to the presentation. Many did not grasp the notion of having a deposition read into the record by someone other than the actual witness; most were probably unsure of whether the credibility scales were to be employed to rate the actual witness or the reader. Thus, we thought it best to delete that condition and concentrate more precisely on the "strong" and "weak" witness conditions.

Second, the information retention portion of the questionnaire was significantly improved. The data from the original study were treated as a pretest and used to eliminate retention items that were too easy and/or failed to discriminate well. These items were replaced with more powerful items tapping the same information.

Third, in analyzing the scales previously grouped as "credibility" we have opted to separate them into their three constituent dimensions: safety, qualification, and dynamism. This change allows more specific analysis of observed differences.

Fourth, and finally, the nature of the samples was changed. While the original study used primarily college students, the replication was conducted using adults recruited from a church group, an historical society, a geneological society, and a senior citizens group.

Results

Six dependent variables have been analyzed: juror information retention, witness authoritativeness, witness character, witness safety, witness qualification, and witness dynamism. All six analyses took the form of two way analyses of variance with the .05 level of significance used in each case.

Table VIII, Appendix B indicates that there is significantly more information retained from the monochromatic presentation than from the color. There is no significant difference for witness type, nor is there any significant interaction of medium with witness type.

Table IX (Appendix B) indicates that there is no significant difference in juror evaluations of witness authoritativeness between color and monochromatic presentations, although the F ratio did approach significance ($p<.10$). There is a significant difference between weak and strong witness, with the strong witness being rated as more authoritative than the weak witness. There is no significant interaction.

Table X (Appendix B) indicates that there are no significant differences in jurors' perceptions of witness character, although the interaction of witness type with medium of presentation does approach statistical significance ($p<.10$).

Table XI (Appendix B) indicates that there is no significant difference in jurors' evaluations of witness safety between color and monochromatic presentations, however, the observed difference does approach significance ($p<.10$). There is a significant difference in jurors' evaluations of the strong and weak witness' safety, with the strong witness rated as more safe. Additionally, there is a significant interaction effect, represented primarily in the strong color condition.

Table XII (Appendix B) reveals that there is no significant difference in jurors' ratings of witness qualification between color and monochromatic presentations. There is, however, a significant difference in the qualification ratings with regard to type of witness. The strong witness is, of course, perceived as being the more qualified. No significant interaction was observed.

Table XIII (Appendix B) indicates that there is a significant difference in juror perceptions of witness dynamism between color and monochromatic media. The witness is rated as more dynamic in hte color condition. Additionally, the strong witness is rated as more dynamic in the color condition. There was no interaction between type of witness and medium of presentation.

Juror Information Retention II (Stimulus IV)

This study sought to determine what, if any, differences in juror retention of information and juror perceptions of credibility exist between live, black-and-white, and color trial presentations. Specifically the study addressed the following two questions:

1. Are there differences in the pattern of information retained by jurors viewing live, black-and-white, and color testimony?

It is possible that even though overall scores on information retention might be nearly the same, the pattern of information retention for jurors viewing live, black-and-white, and color modes of presentation may differ due to the differences in the levels and patterns of attention in the three groups.

Research by Miller and Campbell (1959) suggests that if people are interested in a presentation they will remember the last portion of the message to a greater extent than the first part. On the other hand, if a presentation is uninteresting, recall of the first part will be better than recall of later segments, presumably because listeners tune later sections out. This mechanism might be at work when we present trial segments to jurors in the various modes. If the live mode of presentation results in more personal involvement for jurors than does the videotape, we would expect jurors viewing a live trial to remember earlier events to a greater extent. Similarly, if color television is more lifelike than black-and-white, retention patterns should differ between the two modes. This possibility is supported by Kumata (1960) and Katzman (1971), who report dissimilar patterns of information processing for black-and-white and color television. Schaps and Guest (1968) also found that subjects watching color television had better recall of advertisements than those who viewed black-and-white commercials.

Consequently, we might expect viewers of live trials to retain information given near the end of a trial to a greater extent than color or black-and-white viewers. On the other hand, black-and-white viewers should have a better recall of material given at the outset of the trial than their counterparts in color or live conditions.

2. Are there differences in perceptions of credibility of attorneys and witnesses among jurors viewing live, black-and-white, and color testimony?

Other studies conducted under the grant have dealt with this question. The present study offered an opportunity for replication. Moreover, if attention factors differ among live, black-and-white, and color presentations, this difference might also be expected to exhibit itself in juror perceptions of key figures in the trial.

Procedures

Thirty-one jurors from the 65th District Court in Flint, Michigan, were told by the presiding judge that they were viewing an actual trial where the parties involved had agreed to participate in a jury size study. They were also told that the parties to the trial had agreed that the trial could be halted from time to time so that questionnaires could be administered.

The jurors viewed a live reenactment was videotaped in the courtroom, the jurors having been told that videotape was being used to keep a record of the trial.

After the reenactment the jurors were excused for lunch. When they returned a questionnaire designed to measure retention of information from the second hour of the trial and to tap the authoritativeness, character, and overall credibility for the witness and both attorneys was administered. The second hour of the trial consisted of the testimony of one witness and was chosen for the measurement to avoid confounding effects of delivery style and different credibility levels that might result from testing recall of the testimony of more than one witness. While the jurors were filling out the questionnaire they harbored the impression that the trial would resume when they were done. When they finished the questionnaire they were debriefed and dismissed.

The videotape of the reenactment was shown in color and black-and-white respectively to two other groups of thirty-one 68th District jurors. The judge appeared in the courtroom prior to the videotape showings and instructed the jurors that they were viewing a videotape of a trial where both parties had agreed to accept the judgment of the jury who viewed the videotape. The jury size cover story was also used. The same questionnaire given to the jury in the live condition was administered under the same conditions.

In constructing the retention measure, the hour-long testimony was divided into four, 13-minute parts. Equal numbers of questions were asked from each part. This was done so that the pattern of retention could be ascertained for equal time periods: (1) by comparing retention from corresponding 13-minute sections across live, black-and-white, and color and (2) by performing trend analyses on retention in each mode to derive retention curves for the three modes. The three curves derived by the second method can then be compared. By dividing the data in this manner the following 3 by 4 data matrix was generated:

		Retention for:			
		1st 13 min.	2nd. 13 min.	3rd. 13 min.	4th. 13 min.
Mode of Presentation	Live				
	Color				
	Black-and-White				

Results and Discussion

The .05 level of significance was chosen for all tests.

Question 1: Media of presentation had an almost significant effect over time on juror retention of trial-related information. Table XIV (Appendix B) summarizes retention scores over 13-minute time intervals.

In all three modes of presentation retention was highest for the first 13 minutes and declined throughout the presentation. The difference was found for media effects alone ($F<1$).

For the effect of media presentation over time, however, a difference approaching significance ($p = .055$) was found. It appears that decrement of attention over time is greater for live than for color or black-and-white presentation. Overall, it appears that for longer periods of viewing, videotape results in better retention of trial-related information.

This difference perhaps supports the attention hypothesis discussed above. Videotape presentations may hold juror attention better over long periods than do live trials. Further explanation for the interaction effect may be found in the replication of Juror Information Retention I reported earlier in this section, where retention of information from black-and-white videotape was significantly greater than retention of a color presentation. If black-and-white is the most effective mode of presentation, we would expect retention scores to be skewed in favor of black-and-white over time. Table XIV (Appendix B) shows that generally this is the case. In a secondary data analysis, where black-and-white and color responses were collapsed into a single "video" category, no significant interaction effect was found between mode of presentation (live or video) and time. This lends credence to the suggestion that black-and-white holds juror attention better, possibly because it requires more effort to view and results in higher perceptual stimulation. The emotional arousal study reported in this section also tends to support this reasoning.

One alternative explanation may also be suggested. To the extent that videotape is a novel tool in the courtroom, viewers may pay more attention to videotape presentations. Determining whether or not this is the case requires further investigation.

Question 2: There is no evidence that medium of presentation had a significant effect on jurors' perceptions of credibility of trial participants. Credibility scores are summarized in Table XV (Appendix B). Analyses of these data show no significant difference in attributions of authoritativeness or character for the witness and for both attorneys. For all six analyses F tests are non-significant. This finding provides additional support for earlier studies which found no differences in authoritativeness or character attributions across mode of presentation.

A second interesting finding emerged from the analysis of jurors' character and authoritativeness evaluations. Authoritativeness and credibility scores for the witness and Mr. Stein, attorney for the proponents, were highly correlated, while the same scores for the witness and Mr. White showed very low correlations. These correlations are summarized in Table XVI (Appendix B). The differences in correlations of authoritativeness scores approaches significance. The differences in correlations of character scores are significant ($p<.001$).

These results indicate that juror judgments of the witness and Mr. Stein, the attorney who called him, are closely related. On the other hand, juror attributions concerning the witness and Mr. White, the cross-examining attorney, were unrelated. Table XV (Appendix B) indicates that the actual scores of the three trial participants were very close. For example, for the live condition the witness, Mr. Stein, and Mr. White received character scores of 68.9, 69.9, 69.6, respectively, which is a non-significant difference. We can conclude, then, that although the actual scores of the three participants are almost the same, the pattern of credibility response was different in the case of the witness and Mr. Stein from that of the response to Mr. White.

This difference suggests that jurors tend to evaluate a witness and the attorney who called him as a single unit. That is, whatever attributions of character and authoritativeness jurors make for the witness are reflected in their judgments of the attorney who calls him and vice versa. These findings must, however, be regarded with some caution. The witness portrayed in the reenactment scrupulously avoided any actions which might lead to attribution of extreme characteristics, such as extreme wealth or very low social status or intelligence. It is not at all certain that major differences in the attorney and witness would be reflected in juror evaluations.

Effects of Physiological Arousal on Information Retention (Stimulus III)

The use of videotape in legal proceedings is increasing. As members of the legal communicty consider procedural changes which would liberalize restrictions on the use of videotape in courtrooms and as more courts consider acquiring videotape capabilities, an important question becomes: should the courts invest in color equipment or are black-and-white tapes just as effective? Use of monochromatic instead of color equipment by the courts would be more economical. Black-and-white equipment is also much less complex than color, and the use of color equipment requires better trained technicians and increases the possibility of technical problems. Still, jurors have always experienced the live trial as a color phenomenon, and if any credence can be given to McLuhan's (1964) statement that "the medium is the message," the effects of changing trials from color to monochromatic events should be carefully examined. In the past, when development of new film and television technology offered the public a choice between monochromatic and color viewing, many viewers opted for the color experience, even at an increased cost. Researchers project that color sets will be in over 90 percent of the homes in this country by the 1980s (Katzman, 1971). This preference for color media implies that seeing a color as opposed to a monochromatic presentation fosters a different experience, even if the difference is simply greater enjoyment for the color viewer.

Early research on the effects of color versus monochromatic presentation has yielded mixed results. Previous research on the use of instructional films and instructional television (Vandermeer, 1954; Kanner & Rosenstein, 1960a, 1960b) revealed no significant differences between the amount of information retained by students who viewed a color stimulus and those who viewed a black-and-white stimulus. However, results from studies by Burke Marketing Research (1960) and Schaps and Guest (1968) found that color apparently increased the recall of information contained in the commercials. These studies used different types of questionnaires to gather data. The studies finding no differences between information retention for color and black-and-white presentations used multiple choice questions which tested for retention of information central to an understanding of the subjects that viewers were being taught. The studies finding significant differences between the amount of information retained by the two groups of viewers had participants write "as much as you can remember about each commercial...anything you can remember, no matter how irrelevant it may seem, should be fully described".

Katzman (1971) and Katzman and Nyenhuis (1971) attempted to reconcile these conflicting findings by distinguishing between retention of central and peripheral information. Using a television program as the stimulus, Katzman defined central information as "program content that is relevant to the basic information, message, plot or theme" (Katzman, 1971, p.7). Both studies found that viewers of color presentations had better recall of peripheral information than viewers of black-and-white presentations. Katzman (1971) concludes that color does not improve the learning of visual material central to a presentation. The evidence, however, indicated that in entertainment media the presence of color may alter the balance of central and peripheral material recalled. If the open-ended questions of Schaps and Guest (1968) encompass both peripheral and central information while the narrower multiple choice items of Vandermeer (1954) and Kanner and Rosenstein (1960a; 1960b) test mainly central information, Katzman's results may reconcile the differences in information retention reported in these studies.

In general, then, previous research has suggested that viewers respond differently to monochromatic and color presentations. These differences appear to be most pronounced with respect to minor or peripheral dimensions of the presentation. Just how these differences may be manifest in a courtroom situation remains an open question. Not only may the two formats produce variations in juror's retention of testimony, they may also influence jurors' emotional responses to testimony. For example, a color presentation provides a great richness of color cues, and in turn, may lead jurors to respond differently to the warmness, sincerity, or emotionality of witnesses.

The emotional responses of jurors to testimony could be related to their information processing and verdicts in several ways. In a personal injury case in which a witness described the pain and anguish experienced, jurors would probably feel sympathy for the victim. If they later found for the plaintiff, this sympathy could result in greater monetary award. If an attorney was particularly vicious during cross examination, a juror might become angry. This anger could also affect the verdict.

The easiest way to assess the emotional responses of jurors to testimony would be simply to ask them what their responses were. However, demand characteristics present in a courtroom situation probably mitigate against this kind of self-report measure providing a valid assessment of differences in emotional responses. For example, in personal injury cases jurors are explicitlytold that their sympathies for an accident victim should not affect their decisions about the case. They would, therefore, probably be reluctant to truthfully report that they had felt sympathetic. Jurors come into the courtroom with many such perceptions about how jurors are supposed to behave and respond. Self-report answers are influenced by these predispositions, and since the predispositions are relatively constant, regardless of whether jurors are exposed to a color or monochromatic presentation, it is unlikely that any differences in the emotional responses of jurors could be detected by self-report. An alternative method of assessing emotional response is needed.

At least one theory of emotion suggests that for individuals to experience emotion two components must be present (Schachter, 1964). The first is physiological arousal. This arousal is identical regardless of whether the specific emotion experienced is anger, fear, sympathy, or whatever. What differentiates these emotional states phenomenologically is a cognitive or labeling component. Individuals observe the characteristics of a situation and differentially label their arousal according to how they think they should be responding emotionally based on these observable cues. According to this conceptualization, physiological arousal provides an indicant of the magnitude of an emotion an individual is experiencing.

Schachter and Singer (1962) conducted an experiment designed to support this conceptualization. Subjects were injected with either the drug epinephrine, or a placebo. Epinephrine is a synthetic adrenaline and causes symptoms of physiological arousal, such as sweaty palms and heart rate increases. Those who received the placebo did not have similar symptoms. A third of the subjects who received epinephrine were truthfully told that the drug was causing the arousal, a third were told that the drug resulted in symptoms unrelated to arousal, and a third were told nothing. The subjects who received the placebo were also told nothing about the drug's symptoms.

The subjects were then put in a waiting room with another individual whom they were told was also a subject who had been injected with the same drug. This other individual actually was a confederate working for the experimenters. The confederate had been instructed to engage in one of two sets of behaviors. For half the subjects, the confederate behaved as if he were angry, while the other half observed him engaging in euphoric behaviors. Immediately after the confederate finished his routine, the subject was asked to indicate his or her own present emotions.

Those subjects who had received both the epinephrine and information about its effect generally indicated that they had not experienced much emotion of any kind, regardless of whether they observed the euphoric or angry confederate. They felt physiologically aroused but they had a ready explanation for this feeling: the drug. The response of those subjects who were misinformed or not informed about epinephrine's effects was quite different. Those who observed the angry confederate indicated they had felt angry. They had observed an individual, whom they thought was having an experience similar to their own, behave angrily. They then tended to label their own arousal, for which they had no other ready explanation as anger. Analogously, those subjects in the uninformed or misinformed conditions who observed a euphoric confederate tended to report that they felt happy. Most important for the present study, the placebo subjects generally indicated that they had experienced less emotion than the drugged subjects. Even though they had been given the same information and experiences as the epinephrine-uninformed subjects, they did not experience emotional responses as intense as the subjects who had received the drug. This study and other research by Schachter and his associates (Schachter & Wheeler, 1962; Singer, 1963) provide good evidence for the two component theory of emotion. They demonstrate the importance of arousal in the experience of emotion and suggest that arousal can be used as a direct measure of the magnitude of emotion.

The physiological arousal of jurors may be related to their information processing and verdict in other important ways. Jurors who are aroused also would tend to be alert. Johnson (1959) found the physiological arousal of electronic equipment operators to be good measures of their alertness and overall efficiency. Farmers and Chambers (1925) and Stanley and Schlosberg (1953) found that arousal decreased over time as their subjects became fatigued. Self-report measures in which jurors are asked how interested they were in testimony or how closely they attended to trial proceedings would suffer from the same kind of demand characteristics as self-reports of emotional response. Jurors would probably be reluctant to report truthfully that they had not paid attention to some aspect of a trial, since inattentiveness is not appropriate behavior. A direct physiological measure would avoid this problem.

A third way that arousal could be related to information processing is with respect to information retention. Behnke (1966) found that information that resulted in physiological arousal in subjects was better retained than information which resulted in less arousal. One possible explanation for this relationship is that highly interesting material is more likely to be retained than less interesting material. Information which is of interest is also more likely to result in higher physiological arousal.

The present study, then, was designed to test for possible differences between color and monochromatic television formats on the physiological arousal of viewers. One possibility is that the format may affect arousal level regardless of the interest value or emotionality of the testimony. However, a more reasonable hypothesis is that only in response to testimony which itself results in relatively high arousal will differences resulting from different formats be manifest. In other words, jurors might respond at the same level to relatively dull testimony regardless of the format and respond differentially if the testimony were interesting or emotional. To test for this possibility, two separate stimuli were prepared. Each had the same witnesses presenting the same testimony, but in one condition the testimony was presented in a very straightforward, matter-of-fact, non-emotional way. In the second condition, the testimony was presented in a highly emotional manner.

No directional hypotheses are offered for the relationship between the format of the presentation and physiological arousal of viewers. Intuitively it might seem that since color offers the potential for greater richness and variety of color cues, arousal would be higher during a color presentation. However, the work of many portrait photographers and film makers attests to the potential by high impact of black-and-white materials compared with their color counterparts. Since previous research offers no clear-cut basis for a directional prediction, none were offered.

Method

Overview: Two color videotapes, each with two witnesses giving testimony in a personal injury case, were prepared. The words which the actor-witnesses used were identical in both conditions but in one condition the testimony was given in a very straightforward and non-emotional way. In the other condition, the testimony was presented emotionally. One witness became angry and the other became sad. These tapes were shown individually to 114 Ss in a soundproof room. The Ss were randomly assigned to one of four conditions. They saw the tapes in either color or black-and-white, and heard either the emotional or non-emotional version of the testimony. Their physiological arousal was directly measured as they watched the testimony. They also filled out a questionnaire designed to measure their degree of information retention, perceptions of witness credibility, and their assessment of the emotions they were experiencing while watching the tape.

Measurement: The most common measure of physiological arousal in psychophysiological research is the Galvanic Skin Response (GSR). As individuals become aroused, small amounts of sweat are secreted in the skin which increases its electrical conductivity. It is generally thought by psychophysiologists to be the most sensitive and accurate measure of arousal. In GSR measurement, two small electrodes are attached to the lower palm of the S's hand and the responses are then electronically amplified and recorded on a polygraph. The specific machine used in this study was a two channel Beckman type R S dynograph. The paper speed was set at one millimeter per second. The amplifying settings are adjusted to fit the response levels of individual Ss and can be adjusted at any time during measurement if the response level changes dramatically. The setting during this study was usually 1.0 micromho per centimeter, which is a standard GRS measuring unit. For Ss who display low GSR, the machine was usually adjusted to 0.05 micromho per centimeter. A very responsive S would have the machine adjusted at about 2.0 micromhos per centimeter. The operator wrote the adjustment on the record next to the response and the data coder then took differences in the machine sensitivity settings into account in transferring the raw records into numbers.

The questionnaire the Ss filled out immediately after seeing the stimulus tape measured five categories of variables. Semantic differential type scales were used to measure the credibility of the two witnesses. Information retention was measured with 20 multiple choice and fill in the blank type questions. Semantic differentials were also used for the Ss to report "how (they) were feeling" emotionally at particular points in the testimony. Ss also were asked to indicate the amount of award they would give the plaintiff if she won the case. Several kinds of demographic information were also collected on this questionnaire.

Subjects: Participants were 114 male and female Michigan residents with a mean age of 25.1. They were drawn from two separate populations. Twenty-six Ss were members of the Holt, Michigan, Lions Club. A five dollar donation was made to the Club for each participant. Eighty-eight Ss were students enrolled at Michigan State University who were given class credit for their participation.

Some people fail to show a GSR at a measurable level. Such persons cannot respond differently to manipulated stimuli and in this case would not provide a good test of the differences between color and monochromatic formats. Twenty *Ss* fell into this category and they came about equally from the four experimental conditions. GSR data from these *Ss* were discarded. The discarded data were selected by a psychophysiologist consultant who had no knowledge of the experimental condition from which the data came. Nineteen *Ss* were discarded because of procedural errors during the experiment such as electrodes coming loose. GSR data were thus obtained from 75 *Ss*. Data from all 114 *Ss* were used to examine their perceptions of credibility, degree of information retention, and award.

Stimulus: A script was written specifically for this experiment. It included the cross examination of the father of the plaintiff in a personal injury suit resulting from an automobile accident. The defendant's attorney was quite sharp in his examination, thus permitting an angry response from the witness to appear natural. The next witness was the plaintiff, who underwent direct examination during which she described the nature and seriousness of injuries she had sustained in the accident. Both witnesses were professional actors. They memorized their lines and used the same words during both tapings. The tapes consisted of close-up shots of the witnesses only. The emotional version of the testimony was about 17 minutes long, while the unemotional version was about 16 minutes long. This length discrepancy between the two versions of the tape necessitated analyzing them separate instead of including all four conditions in a two by two analysis of variance with repeated measures.

Procedures

Each *S* signed up for a specific half-hour time period. *Ss* were told beforehand only that they would be participating in research using a GSR machine and that the researchers were examining the way people responded to trial testimony.

Upon arrival *Ss* were met by the experimenter who explained they would be watching a short videotape of actual testimony which occurred in a civil trial in Detroit the past year. At this point the *Ss* were given the opportunity to withdraw from participation and still receive the promised compensation. They were also told that they could terminate their participation at any point during the procedure. None exercised this option at any point.

The same experimenter greeted and briefed each S. The GSR measure is so sensitive that variables such as different experimenters providing instructions to a S have been shown to produce significant differences in Ss' responses (Fisher & Katses, 1974).

The electrodes were attached to the Ss by the experimenter. The Ss then sat alone for 10 minutes to become used to the electrodes and allow their response levels to stabilize. They were then taken into a soundproof room which contained a color television, a chair, and the electrode plugs. The GSR machine, videotape recorder, and other materials were in a room next to the soundproof room. The television set was about six feet away from each S. The Ss were told to make themselves as comfortable as possible but to avoid any sudden movements that might tear off the electrodes. They were also told not to adjust the sound or picture on the set. The last thing each S was told before the experimenter left the soundproof room was to pay careful attention to the tape.

The experimenter then went into the room with the equipment and the GSR operator. The operator had already flipped a card on which the experimental condition the S was to be in was indicated. The condition was randomly assigned to the cards. The GSR machine operator would then run the tape to the appropriate position so that the S could see either the emotional or non-emotional version of the testimony. He also took care to play the tape in the appropriate color or black-and-white format. The experimenter was thus blind to the condition the S was in until he entered the room with the equipment. This procedure eliminated the possibility of the experimenter somehow differentially treating the Ss based on their experimental condition. The experimenter then looked at the card which had been flipped, checked to see that the GSR machine operator had prepared the right version of the tape to play, and gave the operator the OK to start the GSR machine. After the S's responses had become stable, which usually required several minutes, the tape was started.

The GSR machine operator made a note on the GSR recording of the subject number and condition, above which he made a note of the subject number only. He also monitored the machine continuously while the tape was running and made any necessary sensitivity adjustments.

After the tape was finished, the experimenter went back into the sound-proof room, removed the electrodes from the S's hand, and took the S to a third room to complete the questionnaire, which took between 15 and 20 minutes to finish.

After the questionnaire had been completed the Ss were thanked for their participation and allowed to leave. They were not debriefed at this point because of the possibility that they would reveal to other Ss who had not participated that the tape was not an excerpt from a real trial. This decision was justified because of the minor deception involved. Ss were later debriefed in their classes about all aspects of the study. Any questions they had were answered.

Data Coding: Coders were trained by the psychophysiologist consultant. The condition was removed from the GSR data sheet so that only the subject number remained. Thus coders were blind to the condition, eliminating any possibility of bias on their part.

The GSR data sheets for each version of the videotape, the 16 minute non-emotional version and the 17 minute emotional version, were broken down into 30 second time segments, yielding 32 segments for the non-emotional version and 34 segments for the emotional version. For each time segment three pieces of data were coded: the start level: the level of arousal of the S at the start of the segment; (2), the peak: the highest level of arousal for the subject during that segment, and (3), the number of responses, the number of times there was a sharp rise in the arousal level of the S during that segment. Coders also recorded the highest and lowest arousal level for each S across the whole videotape.

In order to assess the relationship between self-report of emotion and arousal level, six pieces of emotional testimony were indentified. Coders indicated the location of these pieces of testimony on the GSR sheet for each S. Arousal level for this bit of testimony was computed by taking the difference between the S's arousal level 10 seconds prior to the testimony and 10 seconds after the testimony. These arousal levels were later compared to a S's self-report of his level of emotion during the piece of testimony.

All together these coding procedures yielded a minimum of 104 GSR measures for each S.

Results and Discussion

Manipulation check: Two semantic differential scales were included with the credibility scales to assess the success of the emotionality manipulation. The relevant scale for the male witness was angry/calm; for the female witness, happy/sad. Table XVII (Appendix B) reports the means, *t* values, and probability levels for these scales. An examination of this table reveals that the evidence for a successful manipulation of emotionality is weak at best. Only one of the four *t* tests was significant and none of the other three approached significance. Since the evidence for the success of the manipulation of emotionality is so weak, it is perhaps best to conceptualize one version of the tape as a replication of the other as opposed to a distinctly different experimental situation. The reader should be alerted to the apparently minor differences between the two versions.

Physiological Arousal: Table XVIII (Appendix B) provides the mean arousal levels for each condition summing across all time frames. Both the mean start level and mean peak level are displayed. An examination of Table XVIII (Appendix B) reveals a consistent pattern of higher arousal in the black-and-white conditions than in color conditions. Since *S*s were randomly assigned to conditions, we can assume that within the limits of probability, the mean initial arousal levels of the groups will be equal. Unfortunately, this was not the case. The GSR measures started before the stimuli tapes, thus providing a pre-stimulus measure of arousal. Prior to the start of the tapes, *S*s in both the emotional and non-emotional black-and-white conditions displayed higher arousal levels than did those in the color conditions. Table XIX, (Appendix B) displays the mean arousal levels for each condition 30 seconds prior to the start of the stimulus tapes. While none of these initial differences are statistically significant, it is nevertheless clear that at least some of the differences between the arousal of those who saw the tapes in color and those who saw them in black-and-white are due to these initial differences.

To control for these initial differences, an analysis of covariance with repeated measures was calculated using each *S*'s arousal level thirty seconds prior to the start of the stimuli tapes as the covariate. Table XX, (Appendix B) displays the results of this analysis using both the frame start and peak arousal levels as dependent variables. For the non-emotional version of the tape, when the peak arousal level from within each time frame was used as the dependent variable, those in the black-and-white condition displayed significantly more arousal than did those who saw the tape in color. When the start levels were used as the dependent variable, this difference approached but failed to reach significance. For the emotional version of the tape, the trend of the data also indicates that those Ss who saw the black-and-white tape were more aroused than those who saw it in color. However, these differences were not significant for either dependent variable. When the number of specific responses within each time frame was used as the dependent variable, no consistent trends across time frames were found.

The rational for including both a non-emotional and emotional version of the testimony was that only under conditions when the testimony itself resulted in relatively high arousal might additional arousal differences resulting from the format become manifest. In light of this rationale it it somewhat surprising that the effect of the format was most pronounced in the non-emotional condition. One possible explanation for this result may be that the emotionality of the testimony in the emotional version "overwhelmed the field." That is, the emotionality of the testimony may have been a more powerful variable in affecting arousal levels than the format of presentation. Any effect that format may have had in the emotional condition may have been masked by the presence of this more powerful variable. In any event, the finding in the non-emotional condition that black-and-white resulted in greater arousal than color is supported by the fact that the trend of the data in the emotional condition was in the same direction.

Post hoc explanations: A number of post hoc explanations could account for this finding. It could be that the color itself in the color format distracted Ss from paying attention to the arousing content of the testimony. For example, the Michigan state flag, which is bright blue, was visible over the shoulder of the witnesses. It and perhaps other peripheral objects may have been more readily visible in the color conditions and could have been more distracting than in the black-and-white conditions. No differences were found on the information retention measures (see below) between the color and monochromatic formats and this would seem to argue against the distraction explanation. However, the information retention measures were probably less sensitive in detecting differences than the GSR measure.

Another possible explanation is that black-and-white television is a novelty for many people. The majority of American television programming is in color, and the majority of homes in America have at least one color television. Ss may have been more aroused in the black-and-white conditions simply because it was unique for many of them to be exposed to materials on television in a monochromatic format.

Another possible explanation is that presentations which contain less information require more involvement by the viewer. The viewers may become more involved since they have to fill in the missing details. It has been argued that radio drama is potentially more involving than drama on film or television for this reason. The black-and-white presentation obviously contains less information than the color presentation and this could account for the differences in arousal.

A final possibility is that it is uncomfortable to watch black-and-white television relative to color. Since black-and-white is further removed from reality, it may be more difficult to relax when watching the less natural black-and-white format. The trends of arousal levels over the entire 16 or 17 minute versions of the tape tend to support this explanation. Prior research indicates that GSR readings show a drop over time. If the Ss in the present experiment had been allowed to sit by themselves with no stimulation for 17 minutes, their response levels would have slowly declined. In the non-emotional color condition this indeed happened: responses fell a mean of .6609 micromhos in the 16 minutes between the beginning and end of the tape. Their natural tendency to relax was not fully offset by the stimulus tapes. In the color emotional condition viewers' responses fell just slightly: .0867 micromhos. Apparently, the emotionality of the testimony negated much of their tendency to relax. In both the black-and-white conditions, however, the GSR's went up over time .2490 in the non-emotional version and .5000 in the emotional. If differences resulted from a novelty effect rather than a discomfort effect, the difference between black-and-white and color should go down over time as the novelty wore off. Clearly the opposite happened.

Procedural Explanations: Several rival hypotheses need to be considered as possible explanations for the result that Ss who saw the tapes in black-and-white non-emotional condition displayed more arousal than their counterparts who saw the tapes in color. During the sessions in which Ss were debriefed, it was discovered that some S's indicated that it was the high quality of the tapes which led to their suspicion. It is possible that those who questioned whether the tape was real were less aroused for this reason. If the color presentation provided an additional cue that the tape was not real, this differential believability could be mediating the relationship between format of presentation and arousal. The experimenter had been instructed to try to determine the extent to which each S believed that the testimony they had seen occurred in an actual trial. This was accomplished by asking several open-ended questions after the subject had filled out the questionnaire. The experimenter then assigned a number between one and five to each S which constituted his estimate of the extent to which the S believed that the tape in color had a mean rating of 3.18, while those who saw it in black-and-white had a mean of 3.21. This difference was not significant. This measure does provide some evidence that the differential believability of the color and black-and-white stimuli tapes does not account for the differences in arousal level.

A second alternative hypothesis is more troublesome. In addition to having greater initial arousal, Ss in the black-and-white conditions may have had a greater propensity to become aroused. It may have been this propensity which had already resulted in their initial higher arousal being greater than that displayed Ss in the color conditions. This possibility mitigates against a strong statement that monochromatic presentations result in higher arousal than color presentations. The conclusion at this point must be tentative.

Other measures: Correlations were calculated between self-reports of emotions at particular points in the testimony and arousal levels at those same points. None of these correlations indicated a systematic relationship supporting the earlier speculation about the invalidity of self-reports of emotions in this situation.

There was a consistent pattern of mildly, (about .10 to .20), positive correlations between arousal and information retention. These correlations were, for the most part, not significant. However, the consistency of the pattern suggests that chance is not responsible for these positive correlations. This relationship was strongest for those who saw the presentation in black-and-white.

The format of the presentation did not affect viewer perceptions of witness credibility. The same was true of monetary award and information retention. Particular care should be taken in interpreting this last finding. Information retention is extremely difficult to measure. In this situation, every S was explicity told to pay close attention to the tape which was, at most, 17 minutes long. Only a limited amount of information could be presented in this time and it may be that the measures of retention were too crude to pick up subtle differences. This is one reason a physiological measure was used in the study. The format of presentation might make a measurable difference in a longer presentation with detailed retention measures.

All analyses were done separately for the Lions Club and student samples. The Lions Club sample was too small to allow firm conclusions. However, in the emotional version of the testimony, the black-and-white format was consistently found to result in higher arousal levels than the color format. No difference between the two formats were found for the non-emotional version of the testimony.

Effects of Physiological Arousal on Information Retention: Replication (Stimulus III)

Experiment II was conducted for two reasons: (1) to directly replicate Experiment I and hopefully allow firmer conclusions about the relationship between format and arousal and (2) to provide data bearing on the post hoc explanations suggested for the results of Experiment I.

An effort was made to make Experiment II as similar to Experiment I as possible. There were, however, three major changes. First, Ss were exposed to the emotional version of the testimony only. Second, an audio only condition was added. This was done in an effort to provide evidence relevant to the explanation for the results of Experiment I which suggested that Ss had to become more involved in the black-and-white condition to fill in the missing details. If Ss become more involved and consequently more aroused when less information is presented, they should display even more arousal when no visual information is presented than when the tape is viewed in either color or black-and-white. This modification created a three group one-way analysis of variance design. Finally, items were added to the questionnaire which Ss filled out after being exposed to the stimulus tape which attempted to measure variables relevant to the other post hoc explanations.

Method

Subjects: Ss were 78 male and female students enrolled in introductory communication courses at Michigan State University. They received class credit for participation. Eighteen Ss were dropped from the analysis because of procedural errors or because they did not provide a GSR of measurable level.

Measurement: Physiological arousal was again measured as the GSR of Ss. The written questionnaire that Ss filled out after viewing the tape was similar to that used in Experiment I. The self-report measures of emotional responses and comprehension measures were dropped from this questionnaire. To provide data bearing on the novelty explanation, Ss indicated on a seven-point scale whether they usually watched color or black-and-white television, and also how many hours of television they watched in an average week. If the novelty of a black-and-white format were resulting in greater arousal in these conditions, thos Ss who typically watched color television should display greater arousal in the black-and-white conditions than Ss who usually watch black-and-white television (and vice versa). Further, if this effect were strong enough to account for the results of Experiment I, S's in general should indicate that they watch more color television than black-and-white television. This questionnaire also had a seven-point scale item designed to measure Ss relative enjoyment of the presentation across formats.

An effort was made to determine if Ss were distracted from paying attention to the content of the testimony by other aspects of the tape. Distraction was assessed in two ways. Ss were explicitly asked to indicate on a seven-point scale how distracted they were by peripheral objects visible on the tape. They were also to list as many objects as they could which were visible other than the witnesses and to list in as much detail as possible what both witnesses were wearing. Those Ss who could list more items might have been more distracted by them and they should display less arousal than Ss who could recall less.

Procedures: The procedures used in Experiment II were as nearly identical to those used in Experiment I as possible for those Ss in the video conditions. Ss in the audio only condition received the same instructions as Ss in the video conditions until they were seated in the sound proof room. After the experimenter determined from the condition cards that the S in the room was in the audio only condition, he informed them of this via intercom. This was done so they would not think something was wrong with the television and so that the experimenter would remain blind to the S's condition during all interactions except the intercom announcement. After this announcement, Ss were given a minimum of four minutes alone in the sound proof room to allow their responses to stabilize.

The same experimenter conducted both experiments.

Results and Discussion

The mean arousal levels displayed by subjects in the three conditions 30 seconds prior to the start of the stimulus tape were unequal (Black-and-White = 6.40; Color = 7.36; Audio Only = 6.74). Consequently a repeated measures analysis of covariance was used to take these differences into account. As in Experiment I, the even numbered time frames only were used in the analysis. Table XXI (Appendix B) displays the results of this analysis with both the start level and peak level from within each time frame used as dependent variables. An examination of this table makes clear that the format differences do not exceed what could be expected by chance for either dependent variable. There also was no significant effect for time nor was there a time-by-format interaction for either dependent variable (Start levels - time, $F = 1.10$; $df = 16/41$; $p < .383$; Time-by-format, $F = 1.01$; $df = 32/82$, $p < .464$; Peak levels - time, $F = 1.56$; $df = 16/41$, $p < .126$; Time-by-format, $F = 1.32$; $df = 32/82$; $p < .158$).

Summing across time frame start levels, the mean arousal level within each condition was: black-and-white = 6.62 michromos; color = 7.31 michromose; audio only = 5.81 michromos. Subtracting the arousal level 30 seconds before the tape began from each of these conditions indicates that subjects in the black-and-white condition went up a mean of .24 michromos. Subjects who say the color format went down .05 michromos, while subjects who were exposed to the audio only went down .93 michromos. Thus, the direction for the absolute magnitude of the raw scores for the color vs. black-and-white comparison is slightly in the direction of that obtained in Experiment 1. As indicated, however, these means are easily accounted for by chance and the results cannot be interpreted as supporting Experiment 1.

The difference between black-and-white and color formats on arousal in the first experiment was statistically significant in the non-emotional condition only. There was a strong trend in the same direction for the emotional tape but this trend did not exceed chance expectations. It was the emotional version of the tape which was used in Experiment II. There is, of course, no way of knowing what the results would have been had the non-emotional version been used, but this could account for the failure to replicate the results of Experiment I. This explanation is less than satisfying, however, because the trend of data in Experiment II is much weaker than was found in Experiment I. The most appropriate conclusion is that it has not been demonstrated that format and arousal are related.

Other measures: No differences across conditions were found for perceptions of credibility for either witness. No differences were found for subject self-reports of interest in the testimony or reports of how tense they felt as they watched it.

Since the results of this experiment are inconsistent with those obtained in Experiment I, interpreting the data bearing on the post hoc explanations for Experiment I is problematic. No support is provided for the differential enjoyment explanation since there were no differences on self-reports of how enjoyable subjects found the testimony. There were also no differences in how distracted subjects felt they were by peripheral objects which were visible.

Excluding the audio only condition, there were no differences between the amount of detail which subjects could recall about what the witnesses were wearing or the number of peripheral objects which were visible. A correlation between arousal and recall of peripheral detail was calculated. This correlation was +.25 ($p = .059$) indicating the more arousal change the more recall. This is the opposite of what would be expected if a distraction effect explained the results of Experiment I. Thus, there is no support for the distraction explanation for the results of Experiment I.

There also is no support for the novelty explanation. The overall sample indicated that they watched black-and-white television slightly more often than color. Also within conditions there were no correlations between arousal and the format of television the subjects usually watched.

Witness Information Retention (Stimulus V)

A goal of the United States legal system is to obtain accurate accounts of events, deemed salient in determining the guilt or innocence of accused persons, from witnesses. To facilitate the accomplishment of this goal, strict sanctions are imposed upon those who intentionally violate the norm of "telling the truth, the whole truth, and nothing but the truth", provided that their false swearing does not go undetected. Perjury aside, there are, however, many reasons why one's account of an event may be an innaccurate one. This study seeks to address one of these reasons, the length of time which accrues between viewing the event and testifying concerning the event. Additionally, advocates of videotape technology in the courtroom argue that the implementation of videotape to record witness testimony shortly subsequent to the event, while the event is still fresh in the witness' mind, would preserve a more accurate account of the event and hence, provide a more objective foundation upon which to adjudge guilt or innocence. However, the additional stimulus of the videotape equipment may affect witness responses in a variety of ways. This study will also seek to ascertain what effects the presence of videotape equipment has on witness response.

Several lines of prior research exist which suggest that testimony will change over time. For example, in literature reviewed by Keele (1973) there is ample evidence to support the notion that, other things equal, persons' retention of information decreases over time for each of three memory processes: short-term sensory storage, short-term memory, and long-term memory. In the same vein, a plethora of studies have found that witnesses are likely to distort and/or forget events as time from the occurrence of the event increases (Givson, 1929, Peterson & Peterson, 1959; Conrad, 1964; Posner, 1964; Hintzman, 1965, 1967).

A second research theme has concentrated on how events which intervene between the perception of an initial event and the subsequent attempt to recall the event affect recall. It has been shown that these intervening events produce distortion, not only in the recall of events, but also in their importance in relation to other events (Gibson, 1929; Levine & Murphy, 1943).

A third piece of evidence entertains the notion that perhaps witnesses may be able to retain accurately information over time since, in the interim between the perception of the event and the report of the event, they may have rehearsed their testimony. The available evidence, however, suggests that rehersal may deter from, as well as facilitate, recall of detail (Bartlett, 1932; Attneave, 1954). Additionally, in reviewing the literature concerning repetition and rehearsal, Keele (1973) cites three important pieces of data. Initially, he points out that repetition and rehearsal are only useful when the material which is rehearsed is organized. Secondly, he argues that organization is necessary if material is to be stored in the long-term memory system. Finally, he states that when types of retention errors are analyzed, errors of overgeneralization occur more frequently than errors of pseudodiscrimination. Hence, one may reasonably conclude from this data that the process of recalling information over time involves organizing the material into some meaningful format; however, the process of organization entails the legacy of information loss. This conclusion is consistent with a similar one made by Shibutani (1966) when explicating the concept of assimilation he attached the label "assimilation" to the observed phenomena whereby accounts of events tend to become more coherent with the assumptions and interests of the individual giving the account.

Two diverse strands of research have produced contradictory results concerning the effect of the presence of videotape equipment on human behavior. Lange, Baker, and Ball (1969) argue that media presence has a substantial influence upon persons in a riot situation. They noted that the presence of television cameras was sufficient to spur a fairly docile protest group into action. They conclude by observing that, ". . . obviously it was not the same event once the cameras were on" (90). On the other hand, Maccoby, Jecker, Breitrose, and Rose (1958) found that the presence of cameras had little effect upon students in a classroom setting. They state that:

> . . . the students experienced no difficulty in ignoring the camera and paying attention to the instructor. Students were obviously aware of being filmed, and of course suitably impressed, but were apparently not seriously distracted from instruction. The situation appeared to resemble the performance of players in televised athletic contests. When play is not in action, players occasionally attend to the camera, but when play starts this is rarely the case. (14)

Zajonc (1968), in a review of social facilitation literature, concludes that the presence of others facilitates performance but inhabits learning.

He goes on to explain that the presence of others is arousing. Further, a consequence of heightened arousal is the enhancement of dominant responses. What it means to say that a task is well-learned is that the correct responses have become dominant. Hence, presence of others facilitates performance. However, during the process of learning, i.e., before material is learned, incorrect responses are dominant. Therefore, presence of others inhibits learning.

It may be speculated that the dynamics of media presence are the same as the dynamics of presence of other persons. Because of a lack of experimental control it is difficult to apply this interpretation to the Lange et. al. data, and since it is not clear whether or not the classroom responses were well-learned it is also difficult to apply this interpretation to the Maccoby et. al. data. However, Zajonc's argument does allow one to stipulate certain expectations, namely that the presence of a camera will produce less recall than will the absence of a camera.

Method

Subjects: The sample for this study consisted of 103 volunteers from the Lansing area. These Ss were primarily drawn from various P.T.A. organizations; however, 10 Ss were non-P.T.A. members. Ss were randomly assigned to the experimental conditions, and were paid $10 or $15 (depending on whether the experimental condition was immediate or delayed) for their participation.

Design: The variables, camera-no camera and time delay, were manipulated so as to form a 2X3 factorial, independent groups design. The former variable was dichotomous and the latter was trichotomous, including an immediate condition, a two week delay condition, and four week delay condition.

Procedures: Upon arrival Ss were seated in a waiting room, a classroom with a seating capacity of 35, while the stimulus was being prepared for viewing. Following the preparation of the stimulus Ss were escorted into the stimulus room, another classroom with a seating capacity of 35, and the following instructions were given:

> Today you will be seeing a marital argument. Please do not be offended by any language used. It is important that realism exists and, let's face it, some people do talk this way when they are angry. For the purpose of this study, pretend that you are the (brother/sister) of the husband. You just dropped in unexpectedly and are able to watch the fight unnoticed.

After hearing these instructions, the Ss viewed a videotape shown on a monochromatic monitor. As many as 10 Ss and as few as one S saw the tape at any one time. The content of the tape involved a marital argument in which a man comes home at 8:00 A.M. to a waiting wife. An argument develops and such topics as money, the baby, and each other's socializing provide the volatile ingredients for a moderately violent confrontation.

Following the presentation of the stimulus further instructions were given:

> This quarrel proves to be the last straw and your sister-in-law brings charges of assault and battery against her husband. You, of course, are an eye witness and will be asked to give testimony when called upon.

Immediate Report:

> Please return to room 102 (the waiting room). Please do not talk to anyone about what you just saw. After all, it is you and only you who have seen the fight. This is extremely important research and we need to know what you think.

Delay Condition:

> (Person organizing the group) will indicate when you should return to complete the study where you will be asked to testify. Please do not talk about this to anyone who has or will be seeing the tape. After all, it is you and only you who have seen the fight. This is extremely important research and we need to know what you think.

The S then waited until called into the testimony room, a carpeted classroom with a seating capacity of 50. Three raters and an examiner were present in this room. As the Ss entered theywere seated and a microphone was placed around their necks. The examiner then informed each S that they were (were not) being videotaped, asked formulated information retention and demographic questions, and debriefed the S; the camera-no camera variable being manipulated by either having the camera, monitor, and VTR present in the testimony room or by having them absent from the testimony room. The S then returned to the waiting room where he filled out a questionnaire and was dismissed.

Measurement

Several variables were measured in the questionnaire. Initially, demographic information was obtained. Secondly, three dependent variables were measured: information retention, witness knowledge, and nervousness.

The former measurement consisted of 22 items, which either had yes-no answers or required a short explanation. The correctness of some items was contingent upon responding correctly to a previous item. Since an audio record of all testimony was available, two raters listened to the audio tapes and coded *S* responses on a scale ranging from zero to two: the former being completely incorrect and the latter being completely correct.

Witness knowledge was calculated by the rater estimating how much knowledge the *S* had of the stimulus, given that zero knowledge is no knowledge of the stimulus at all and that 100 is the amount of knowledge of the stimulus that an average person would have after viewing the videotape.

The nervousness measure consisted of a self-report by the *S* of the nervousness that he felt while participating in the study. Two scales were used; they differed only in that the former was a seven point scale and the latter was a 100 point scale. This procedure was followed in the hope that if the latter scale, which is more sensitive in ascertaining variance in nervousness but less likely to be reliable, was not found to be reliable, then the former scale would still provide a reliable measure of the variable, albeit a measure not as likely to be sensitive to individual differences in nervousness.

Results and Discussion

Initial analyses assessed the reliability of the judgments of the two raters. A zero-order Pearson correlation coefficient was computed between the total information retention scores and the total witness knowledge scores of the two raters as an estimate of the reliability of their ratings. The former coefficient was extremely high ($r=.95$), suggesting that the judgments of correctness of items between raters was very reliable. Further, the mean and standard deviation statistics support the notion that the absolute magnitude of the raters' judgments were also very similar ($\bar{X}=22.22$, $S=6.69$; and $\bar{X}=19.89$, $S=5.87$). The witness knowledge scores were only moderately correlated, however ($r=.72$). Hence, there is some formidable measurement error in these data. In addition, although standard deviations are similar, there is a large mean difference between the raters' judgments ($\bar{X}=69.77$, $S=23.52$; and $\bar{X}=91.72$, $S=26.43$).

Additionally, since the information retention measure was composed of a number of items, the scale was analyzed for internal consistency. These coefficients were not extremely high (alpha = .75 for rater 1, and alpha = .72 for rater 2)· however, these figures are attenuated somewhat since the correctness of some items was dependent upon getting a previous item correct. In general, there is no evidence to suggest that unreliability might attenuate any effects of other variables on information retention, and there is not sufficient unreliability in the witness knowledge data to expect the effects of other variables on witness knowledge to be seriously attenuated.

An analysis of variance was performed to assess the effects of the camera-no camera manipulation and the time delay manipulation on information retention, where the latter variable consisted of summing the information retention scores of the two raters for all subjects. The results of this analysis are presented in Table XXII, Appendix B. Observation of this table shows a significant main effect for time delay, such that as time delay increases, information retention decreases at a decelerating rate. Further, this relationship is fairly strong, such that 37 percent of the variance in information retention is explained by time delay. This finding is consistent with expectations developed from previous research. However, no main effect for the camera-no camera manipulation was found, contrary to expectations. Additionally, camera-no camera and time delay did not combine to produce a significant interaction effect on information retention.

The same results were obtained from an analysis or variance performed upon the raters' perceptions of witness knowledge, although the effect for time delay is somewhat weaker (R^2=.34), perhaps as a function of the unreliability in the witness knowledge data. The results of this analysis are presented in Table 2. This similar finding is not surprising since information retention and raters' perception of witness knowledge are highly correlated (R=.91), and therefore, to a large extent are tapping the same underlying variable.

A final analysis of variance was performed on each of the two measures of nervousness. These results are presented in Tables 3 and 4. Although there are no significant main effects or interactions for the seven-point scale measure of nervousness. there is a trends toward significance for the camera-no camera manipulation such that there is greater nervousness in the camera condition. The 100 point scale measure of nervousness, a somewhat more sensitive measure, reflects this trend to a greater degree and statistical significance was obtained ($p<.05$). No main effect for time delay was found, however, and there was no significant interaction. The somewhat discrepant findings obtained from the two measures of nervousness are not surprising since the two scales were only moderately correlated ($R=.74$), which may reflect either measurement error or that the scales are tapping somewhat different dimensions of the nervousness variable.

Following Zajonc's reasoning it has been argued that the presence of media would heighten arousal which would, in turn, enhance dominant responses. Given that persons had learned the stimulus material, the presence of a camera was expected to arouse nervousness which would enhance the performance of the witness. Although the presence of the camera did seem to arouse nervousness, nervousness did not facilitate information retention ($R=-.05$, seven point nervousness scale; $R=-.02$, 100 point nervousness scale). Several explanations may clarify this result. Initially, of course, it may be the case that Zajonc's reasoning cannot be extended to media presence. Secondly, it may have been the case that the camera-no camera manipulation was of insufficient strength to trigger the theoretical predictions. This interpretation has some support from the data in that the mean nervousness values are not of great magnitude ($\bar{X}=3.52$ in the no camera condition; $\bar{X}=3.98$ in the camera condition for the seven point scale, and $\bar{X}= 28.50$ in the no camera condition; $\bar{X}=38.91$ in the camera condition for the 100 point scale). Finally, it may have been that the correct responses to the information retention items were not well-learned prior to the recall task. If this were the case, then Zajonc's reasoning would not apply, since it is a necessary condition of his theory that the responses be well-learned. The data also offer some support for this interpretation in that the mean information retention scores were not exceedingly high ($\bar{X}=42.12$ on a scale which potentially ranged from 0 to 84).

Finally, analyses of the demographic data produced little in the way of significant results. One finding of some interest, however, is that those who had been party to a suit in the past tended to retain more information and were judged to be more knowledgeable of the subject matter. These relationships were not however, exceptionally strong (r^2=.07 and r^2=.03). Nevertheless, this finding provides some basis for speculating that experience with legal tasks facilitates one's retention of information in one's subsequent legal experiences.

TRIAL PARTICIPANT CREDIBILITY

The Effects of Full-Screen versus Split-Screen Presentation (Stimulus I)

As indicated in the Technology section of this report, we developed two taping systems for use in the live versus videotaped presentation study; a split-screen system and a full-screen system. In order to gain further information about possible differences in juror responses to trials conducted via the two systems, we conducted a preliminary study using adult subjects who were asked to role-play jurors--i.e., to behave as if they were serving as jurors in an actual trial.

Perhaps the greatest difference in the two systems lies in the amount of detail that can be captured by the cameras. Although the single camera full-screen system has the advantage of providing jurors with a realistic shot of the entire trial area, the technical limitations of relatively low-cost equipment prevent the screening of close-up views of trial participants, particularly when panning and zooming are prohibited. Thus, while the full-screen shot enables jurors to identify the various participants, it does not permit them to pick up many subtle nuances in facial expression, gesture, and the like.

By contrast, the triple camera, split-screen system allows the juror to study the idiosyncratic responses of trial participants in greater detail. The two camera shots that comprise the upper half of the screen--i.e., the shot of the witness in the upper left quarter and of the questioning attorney and the bench in the upper right quarter--provide much more detailed shots of the participants because the cameras are focused tightly on those portions of the trial area. The greatest potential disadvantage of the split-screen system is its lack of realism; unlike the full-screen system, which communicates a single shot of a familiar setting, the split-screen system obviously relies upon technology to create a more highly visible, yet somehow more "unnatural" product.

How are these differences likely to affect juror responses, if at all? Again, we believed it possible to make plausible arguments for either, or several, opposing outcomes. On the one hand, the greater detail of the split-screen system might provide more information for jurors, thereby allowing them to make finer discriminations in their perceptions of trial participants or to assimilate more trial-related information. On the other hand, the contrived nature of the split-screen system might itself be distracting, causing jurors' curiosity to wander to questions concerning the ways that the effect is achieved. To the extent that this might happen, we would expect assimilation of trial-related information to suffer.

Since we were uncertain which lines of argument might prove most fruitful, we decided, as in the live vs. videotape study, to pose questions rather than to test hypotheses. More specifically, the questions investigated paralleled those of the earlier study closely:

1. Are there differences in attribution of negligence between jurors exposed to a full-screen trial and jurors exposed to a split-screen trial?
2. Among jurors finding for the plaintiff, are there differences in the amount of award between those who viewed the full-screen trial and those who viewed the split-screen trial?
3. Are there differences in perceptions of attorney credibility between jurors exposed to a full-screen trial and jurors exposed to a split-screen trial?
4. Are there differences in retention of trial-related information between jurors exposed to a full-screen trial and jurors exposed to a split-screen trial?
5. Are there differences in motivation and interest between jurors exposed to a full-screen trial and jurors exposed to a split-screen trial?

Procedures

Subjects were 57 adult members of a Catholic Church group in the greater Lansing area. Aside from the obvious bias in religious affiliation, the subjects' demographic characteristics--e.g., age, occupation, and educational level--were similar to those of a typical jury panel. Constraints concerning the availability of a courtroom and of actual impaneled jurors led to our decision to conduct the study outside the courtroom setting.

All subjects participated in the study on a Saturday evening in early February, 1974. Upon reporting to the Church at 6:30 p.m., each subject was randomly assigned to either the Full-Screen or the Split-Screen condition and was given instructions to report to the appropriate room. Two large social rooms, well separated within the Church, were used in the study.

When the subjects were assembled in the experimental rooms, their task was explained to them. They were told that they would be viewing a reenacted trial concerning an automobile injury case and that they were to assume the role of jurors. It was further explained that the purpose of the study was to assess both the effects of using videotape in courtroom trials and the effects of jury size on the responses of individual jurors. The importance of entering into the role of juror was stressed, and it appeared that most of the subjects assumed the role earnestly.

After the instructions had been given, subjects in the Full-Screen condition saw the single camera videotape of Nugent versus Clark, while subjects in the Split-Screen condition saw the triple camera tape of the same trial. Two monitors were employed in each of the experimental rooms. As in the earlier study, at Flint, the trial was shown in 50 minute segments, with the subjects taking a 10 minute break between each segment while the researcher put the next reel on the machine. Subjects were cautioned not to discuss the trial during breaks, and as mentioned earlier, the two experimental rooms were so widely separated that there was no opportunity for conversation between subjects assigned to different conditions.

After the trial was completed, all subjects filled out the same questionnaire used in Study I. When everyone had finished the questionnaire, the researchers thanked the subjects for their assistance and excused them.

Results and Discussion

For all statistical tests, we employed the .05 level of significance. Analysis of the data yielded the following results:

Question 1: There was no evidence that the type of presentation (split-screen versus full-screen) had a differential effect on the role-playing jurors' attributions of negligence. As in the first videotape study, there are several ways the verdict data can be broken down. Table XXIII (Appendix C) summarizes the frequency of each type of verdict for subjects in the Full-Screen and Split-Screen conditions.

None of the four chi squares calculated for the various ways of splitting the verdict was significant at the required .05 level, nor do any of them approach significance. We conclude, then, that the type of presentation does not seem to have a statistically significant influence on jurors' attributions of negligence in the case.

Question 2: We analyzed the data for amount of award in two ways: first, we compared only those Full-Screen and Split-Screen jurors who stipulated an award for Mr. and Mrs. Nugent; second, we compared the mean award for all jurors in the Full-Screen and Split-Screen conditions, including those jurors who did not stipulate an award.

For the first analysis, the mean awards to Mr. Nugent were $3,137 in the Split-Screen condition and $2,919 in the Full-Screen condition. Comparison of these means yielded a *t* of <1 which, of course, failed to approach significance. Mrs. Nugent received a mean award of $21,200 in the Split-Screen condition and a mean award of $19,308 in the Full-Screen condition. Again, the *t* for the comparison of these two means is <1.

For all jurors in the two conditions, including those who did not stipulate an award, the mean award for Mr. Nugent in the Split-Screen condition was $1,569, while the mean award in the Full-Screen condition was $1,459. Mrs. Nugent received a mean award of $10,000 in the Split-Screen and a mean award of $8,097 in the Full-Screen condition. Both the comparison of Mr. Nugent's awards and of Mrs. Nugent's awards yielded *t*'s of <1.

Thus, there is no evidence whatsoever that the type of presentation to which jurors were exposed affected the amount of the award granted. To be sure, the mean award is consistently somewhat higher in the Split-Screen condition, but the variance in the amount of award within each condition is so high that this difference is readily attributable to chance fluctations as the very small *t* values for each of the comparisons indicate.

Question 3: Although there is some indication that the type of presentation may have influenced the jurors' perceptions of attorney credibility, the evidence is less than overwhelming, since the difference is significant for only one of the attorneys. The plaintiff's attorney, Mr. Simmons, received a mean credibility rating of 5.19 in the Split-Screen condition and a mean rating of 4.81 in the Full-Screen condition. The comparison of these means yielded a significant *t* of 2.23, indicating that Mr. Simmons was rated significantly more credible by those jurors who saw him on the split-screen system. By contrast, the mean credibility ratings for Mr. Albright were 5.47 in the Split-Screen and 5.12 in the Full-Screen condition. Although the resultant *t* of 1.75 has a *p* value of <.10, it does not reach the .05 level required for significance.

We had assumed that the greater detail provided by the split-screen system might result in more favorable perceptions of the attorneys, especially since both were skilled courtroom performers. Although, admittedly speculative, there is a possible explanation for the fact that this effect was more pronounced for Simmons than for Albright. As a result of informally observing the two attorneys, we concluded that Mr. Albright's strongest rhetorical tool was his vocal dynamism and power, while Mr. Simmon's primary rhetorical strength seemed to lie in his expressive nonverbal behaviors and his skillful use of props such as his glasses. Obviously, such nonverbal talents could be observed more easily on the split-screen while the vocal abilities of Mr. Albright would be readily recognized in both conditions.

Hence, we believe that the credibility of a skilled trial lawyer may be enhanced by the split-screen system, at least when relatively inexpensive equipment is used. Of course, if the single screen shot could be magnified by means of a projection system, this difference might be eliminated. Moreover, we have no data to suggest whether the converse is also true; i.e., that a relatively unskilled attorney would profit from the loss of detail that occurs with the full-screen system.

Question 4: This study provided no evidence that the type of presentation exercised an effect on jurors' retention of trial-related information. Jurors in both conditions had relatively high mean retention scores: of a possible score of 39, the mean for jurors in the Split-Screen condition was 30.70, while the mean for jurors in the Full-Screen condition was 31.03. As might be expected, the comparison of these means resulted in a t of <1. Thus, we conclude that there is no reason to expect that one system or the other is superior in terms of juror retention of trial-related information.

Question 5: In terms of juror interest and motivation, there is no clear evidence that the two modes of presentation were differentially effective. The mean rating of juror interest and motivation was 5.31 in the Split-Screen condition and 4.94 in the Full-Screen condition. Although the resultant t of 1.52 has a p value of $<.10$, it is not significant at the .05 level. Thus, while there is a trend toward higher self-report ratings of interest and motivation in the Split-Screen condition, we cannot conclude that these jurors were more motivated or found the task more interesting.

It is worth noting that the maximum possible rating of interest and motivation was 7.00. Consequently, jurors in both conditions reported that their interest and motivation were well above the midpoint (3.50) of the scale. This fact suggests that neither group found the task of viewing a videotaped trial unmotivating or uninteresting, a conclusion that bodes well for the use of either system in actual trial situations.

A Concluding Note of Caution

Save for perceptions of attorney credibility, the two taping systems do not appear to produce differential effects on the juror responses measured in this study. There are, however, some admitted problems in failing to reject the null hypothesis--i.e., the hypothesis of no differences between the two groups on the variables measured. Specifically, we cannot specify a significance level for our findings of no differences, as we can in the one instance where the two conditions differed significantly. Many possible sources of error may have contributed to our failure to observe differences between groups: errors associated with the measuring instrument, errors resulting from the administration of the trials by the researchers, errors stemming from characteristics of the subjects themselves, etc. Still, we developed our instruments carefully and were careful to keep the administration as constant as possible in both conditions. Consequently, we have as much confidence in this study as we do in most studies that support the null hypothesis, and a good deal more than we have in some.

The Effects of the Deletion of Inadmissible Testimony from a Videotaped Trial (Stimulus I)

Proponents of the use of videotape in trial procedure have argued that an advantage of videotape is that instances of legally inadmissible testimony may be readily edited from recorded videotape before jurors are ever exposed to such testimony. This is said to insure that no testimony or other information not legally necessary or permissible would taint a jury's verdict.

This proposed advantage is based on the assumption that, while jurors are instructed by judges to disregard such instances of inadmissible material, they may well not do so; or perhaps they cannot even do so.

Videotape recording procedures, including editing procedures, certainly do allow inadmissible testimony to be deleted from trials before they are shown to juries. Videotape also offers a ready means of measuring the effects of inadmissible testimony on jurors' verdicts. By systematically editing varying amounts of inadmissible material from a trial, presenting the trial in its variously edited forms to groups of subjects, and then measuring juror response to the varying forms of the trial, the effects of inadmissible testimony itself, and of editing inadmissible testimony, may be determined.

If trial procedure may be thought of as a highly rule-governed procedure, then jurors can be assumed to have expectations parallelling these rules; that is, jurors would expect that attorneys would not violate courtroom rules. If these rules are extensively violated by an attorney, then one or both of two contingencies might be predicted. The rule-breaking attorney might be perceived by jurors as having knowingly and intentionally broken the rules, in which case the attorney would be perceived as less trustworthy than had he not broken the rules. Alternatively, the rule-breaking attorney might be perceived as ignorant of the rules of trial procedure, leading to a decrement in the jurors' perceptions of his legal competence or expertise.

It may be hypothesized that this decrement could well influence his client's case. Again, this effect could take one of two forms: in one case, jurors may react unfavorably toward the client represented by the rule-breaking attorney; in another, jurors may feel some measure of sympathy for the client and react more favorably toward the client's case.

Since the preceding hypothetical analysis involves a number of complex, competing, curvilinear relationships, no experimental hypotheses were tested. Rather, the study was designed to address the following questions:

1. Are there differences in attribution of negligence among jurors exposed to differing amounts of inadmissible testimony in a trial?
2. Among jurors finding for the plaintiff, are there differences in the amount of award among those jurors who have been exposed to differing amounts of inadmissible testimony?
3. Are there differences in perceptions of attorney credibility among jurors who have been exposed to differing amounts of inadmissible testimony?

Procedures

One hundred and twenty jurors serving on the Wayne County Circuit Court (Detroit, Michigan) February, 1974, who voluntarily returned for "further jury service" during the week following the end of their term of jury service, were instructed that they would serve as jurors in change of venue trials moved to Wayne County from Michigan's upper peninsula.

The jurors were randomly assigned to one of seven experimental conditions (zero deletions of inadmissible testimony to six deletions of inadmissible testimony). Each group was shown into experimental rooms containing folding chairs and videotape equipment (one videotape recorder, one monitor per room).

The jurors were then shown the stimulus trial described earlier. Recesses at 50 minute intervals and a lunch break were allowed. Visual exhibits were distributed at the appropriate time.

At the conclusion of the judge's instructions, the representative of Michigan State University was introduced and administered the "jury size" questionnaire. This questionnaire was essentially the same as those used in Studies I and II, with the addition of five questions whose answers referred to inadmissible portions of the trial. After the completion of the questionnaire all jurors were completely debriefed. No jurors expressed suspicion of the procedures used in the study; in fact, a number of them expressed a desire to move on to group deliberation so as to reach a verdict. As in previous studies, no group deliberation occurred.

Results

To test for effects of the deletion of inadmissible testimony on juror attribution of negligence, a series of chi square tests for differences in attribution of negligence among the seven conditions was performed. Table XXIV (Appendix C) indicates a generally higher proportion of verdicts for the plaintiff, but this does not significantly vary as the amount of inadmissible testimony introduced to jurors varies.

To test for differences in the amount awarded to Marjorie Nugent, a simple analysis of variance of award among the seven conditions was performed. Only the awards made by jurors who had found the defendant negligent and the plaintiff not negligent were considered in this analysis. That is, since no other jurors could legally have made awards, only those who found the sole negligence to be defendant's were considered.

The mean amount of awards made by jurors in the seven conditions is shown in Table XXV (Appendix C). A simple analysis of variance yielded no significant differences in amount of award attributable to the amount of inadmissible testimony included in the trial ($F < 1$).

To test for the effects of the inclusion of inadmissible testimony on the credibility of attorneys, sets of scales previously found to be highly reliable indicants of perceived trustworthiness and of perceived competence were analyzed for both attorneys. Since the plaintiffs' attorney was responsible for introducing the additional inadmissible materials, some change might have been expected over the seven conditions. A simple analysis of variance of trustworthiness scores of plaintiffs' attorney yielded no significant differences among the seven conditions of inadmissible testimony (F < 1). Similarly, a simple analysis of variance of competence ratings of plaintiffs' attorney among the seven conditions produced no significant differences (F = 1.61).

Similarly, the attorney for the defendant suffered no significant decrement in jurors' ratings of his credibility as a result of the varying amounts of inadmissible testimony in the seven versions of the trial (F = 1.39 for trustworthiness; F < 1 for competence). No change was expected over conditions for these measures, since the opposing attorney was largely responsible for introducing the additional inadmissible testimony. Had any increment in credibility measures been observed for this attorney, it might have been as a result of, or as a manifestation of the decrement in perceived credibility of the opposing attorney.

Effects of Inadmissible Testimony: An Extended Replication

A problem may have arisen in the first study dealing with inadmissible testimony because of our attempt to detect very subtle differences. In that study, we depended on single-item differences in admissible materials to produce variations in juror response--i.e., our use of seven conditions relied heavily on the possibility that one additional item, or one less item, would exert a powerful impact on juror behavior. Given that we have no precise way of gauging the psychological impact of each item, this procedure involved definite experimental risks.

In this follow-up study, we sought to discover if more molar discriminations would have a differential effect on juror response. We used three of the seven conditions employed in Study III: the version of the trial containing none of the six additional items of inadmissible material, the version containing three of these items, and the version containing all six. The questions investigated paralleled those of Study III.

1. Are there differences in attribution of negligence among jurors exposed to differing amounts of inadmissible testimony in a trial?
2. Among jurors finding for the plaintiff, are there differences in the amount of award among those jurors who have been exposed to differing amounts of inadmissible testimony?
3. Are there differences in perceptions of attorney credibility among jurors who have been exposed to differing amounts of inadmissible testimony?

Procedures

Because of limitations in the availability of a courtroom setting and actual impaneled jurors, 144 undergraduate students at Michigan State Unviersity role-played jurors in this study. Potential subjects responded to advertisements requesting paid assistance in a legal research project, and those who agreed to participate were randomly assigned to one of the three conditions.

The study was conducted over a period of three evenings, with the same large classroom used each time. One of the conditions was run each evening. Three television monitors were used in each condition.

Subjects were told that they would be viewing an actual videotaped trial and that their task was to role-play a conscientious juror. They were instructed to assume that their verdict would be binding on the plaintiffs and the defendant.

After ascertaining that the subjects understood the instructions, the researcher started the recorder and played the appropriate version of the trial. Subjects were given a 10-minute break every hour while the researcher changed tapes. They were admonished not to talk about the trial during the breaks.

Following presentation of the entire trial, the subjects completed the same questionnaire used in the earlier study. They were then debriefed by the researcher, thanked for their participation, and excused. Most of the subjects expressed interest in the project, and it appeared that they went about their task of role-playing jurors conscientiously.

Results

For all statistical tests, the .05 level of significance was employed. Analysis of the data yielded the following results:

Question 1: Once again, there is no indication that the amount of inadmissible materials affects jurors' attributions of negligence. Table XXVI (Appendix C) summarizes the frequency of each type of verdict for subjects in the 0 Item, 3 Item, and 6 Item conditions. For all four analyses, the obtained chi squares do not approach significance. As usual, more jurors found for the plaintiff, but the frequency with which this occurs is not affected by the various versions of the trial.

Question 2: There is no compelling evidence that the amount of inadmissible testimony introduced in the trial influenced the awards of jurors finding in favor of the plaintiff. The mean award for Mrs. Nugent in the 0 Item condition was $15,526; in the 3 Item condition, $17,806; and in the 6 Item condition, $14,964. Although this pattern of means is consistent with our expectations--i.e., when compared with the base line version containing no additional inadmissible materials, Mrs. Nugent's award went up with the addition of three items but declined with the further addition of three more--the resultant F of <1 does not approach significance.

Question 3: There is no evidence that jurors in the three conditions perceived the plaintiffs' attorney, Mr. Simmons, as differentially credible, suggesting that his introduction of inadmissible materials did not have a deleterious effect on his courtroom image. Specifically, the mean ratings of Simmons' credibility were as follows: 0 Item condition, 4.71; 3 Item condition, 5.01; and 6 Item condition, 4.70. Although these means correspond with the pattern observed on amount of award--i.e., Simmons' credibility increased when he introduced three items of inadmissible testimony but declined when he increased the input to six items--the F obtained was 1.70, which is not significant.

Albright's mean credibility ratings are somewhat more stable than those of Simmons: 5.32 in the 0 Item condition; 5.21 in the 3 Item condition; and 5.42 in the 6 Item condition. A simple analysis of variance of these ratings produced an F of <1.

Detecting Deception (Stimulus VI)

Witnesses often report different accounts of events during their testimony. Much of this conflicting testimony is probably a result of honestly differing perceptions about the facts of a case. However, conflicting testimony may also be a result of actual lying. The rules of procedure governing trials are designed, in part, to help jurors fairly resolve instances of conflicting testimony. Cross examination helps to test the credibility of witnesses thus giving jurors additional information on which to base their decisions regarding the truthfulness of testimony. The detection of deception, or lying, by witnesses is thus an important matter for jurors and a crucial determinant of the judicious rendering of verdicts. If a juror's ability to detect deceptive testimony by witnesses is influenced by the type of videotape presentation--i.e., colored versus monochromatic--this would be important information to have prior to adopting one of the systems. Color, for example, may provide the opportunity for nonverbal behavior such as facial flush and perspiration to be more accurately observed. This study was designed to supply data bearing on jurors' ability to detect deception when viewing monochromatic and colored testimony.

A recent experiment (Ekman and Friesen, 1974) demonstrated that when individuals lie, they generate nonverbal cues that observers can use to detect this lying with greater than chance accuracy. Further these "leakage" cues occur more readily from the liars' bodies than from their faces. Presumably this is because individuals who are lying are quite aware of their facial expressions and take care to control them. They pay less attention to what their body is doing, thus allowing these leakage cues to emerge. Ekman and Friesen's subjects were able to identify more accurately lying when they observed the body only than when they observed the head only. An important question becomes: how much of a witness' body should appear on a videotape to maximize the possibility of jurors being able to accurately detect lying? Subjects in the Ekman and Friesen experiment saw either the body only or the head only of the people who were lying. Those who saw only the body may have been more accurate than those who saw only the head because they were forced to observe the body; i.e., that was all they had to observe. If the head had been available for observation, it might have distracted subjects from noticing the leakage cues which were emerging from the body. In this experiment we have included a head and body condition to allow for this possibility.

The Ekman and Friesen study (1974) dealt with nonverbal cues only; i.e., subjects were not allowed to hear what individuals had to say, but only to see the way in which they said it. Knapp, Hart and Dennis (1974) suggest that it may be the discrepancy between verbal and nonverbal cues which provides the best information for identifying lying. It is not known how the availability of verbal behavior would interact with different nonverbal components such as head only, body only, or head and body to provide jurors with the best possibility of detecting deception. This experiment was designed to answer these questions.

When witnesses consciously present false testimony, it is probably safe to assume that it is extremely important to them that they be believed, for they are usually highly ego involved with the success of their lying efforts. Ekman and Friesen (1974) suggest that it is exactly under these circumstances that leakage cues are most likely to occur. Apparently people can lie somewhat more successfully in a matter-of-fact or flippant manner than when the success of the lie has important consequences for the liar. For this reason, great care was taken to assure that the individuals who provided us with samples of true and false testimony were highly ego-involved with their success.

Procedure

Creating the Stimulus: Our "liars" were 21 male and three female criminal justice majors at Michigan State University. Each of them planned a career in the law enforcement area. The Chairman of the Department of Criminal Justice sent each of them a letter inviting them to participate in "a research project aimed at identifying certain personal characteristics of individuals which might contribute to their successful performance as police officers." Several days later they were contacted by phone and given the opportunity to select a particular time period to participate. When they arrived at the site of the experiment, they were told that research had indicated that successful police officers tended to be better liars than less successful officers. An elaborate rationale was included to make this cover story credible. For example, Ss were told that police officers frequently were faced with situations in which they had to behave in ways other than the way they actually felt such as appearing calm in an emotionally-charged atmosphere. They were further led to believe that their success in lying would be a good predictor of their potential as police officers and that information about how well they had done would be given to the criminal justice school which was "very interested" in how well they performed. They were then shown a videotape of one of two events and instructed when to lie and when to tell the truth regarding the factual content of the tape. We hoped to thus insure their ego-involvement in the deception.

At this point, Ss were taken to the television studio where the taping was to take place and introduced to a detective from the East Lansing police department. The detective reinforced many of the things the Ss had been told. For example, he explained that in his own work, he frequently used an interrogation strategy of falsely indicating that he had more information about an event than he actually had as a means of eliciting information from the suspect. Of course, he said, only to the extent that he was successful in making the suspect believe that he indeed had this information was this a viable strategy. No S questioned the authenticity of the cover story at any point.

The interviews, during which the stimulus tapes were made, consisted of four segments. First, Ss were asked five questions about personal characteristics. They always answered these truthfully. As was noted earlier, Ekman and Friesen (1974) were able to support their head versus body accuracy prediction only when they provided the observers with a sample of honest behavior first. It may be necessary to have some familiarity with the behavior of an individual in order to be able to identify accurately lying at a greater-than-chance level. The truthful segment was provided to increase the likelihood that observers would be able accurately to detect lying and thus the manipulated categories of information would be more likely to make a systematic difference. A similar segment is provided to jurors when witnesses are sworn in and asked to state their names.

The second segment involved questions about the factual content of a videotape Ss had seen before being interviewed. They were shown one of two versions of this videotape. Both versions showed the sentencing of a criminal who had been tried and found guilty of murder. The individual who was being sentenced reacted on one tape very violently. He swung at his attorney, attacked the prosecutor and bailiff, and had to be forcibly removed from the courtroom. In the other version of this tape, the individual was very passive in hearing his sentence. He listened to the judge politely and was very docile as he was led from the courtroom. Ss were instructed to lie to the first three of the five questions they were asked about the content of this videotape and to tell the truth to the last two questions, or vice versa. Ss who were instructed to lie were also told what to say. This was done to cut down on the variability of the content of the lying responses. If Ss had been able to make up their own lies, the content of those who were telling the truth would have been very consistent across Ss, while the content of those who were lying would have had great variability. The variablility factor probably would spuriously increase observer accuracy.

The last of the five questions during this second segment was open ended and simply asked for a description of the defendant's reaction to being sentenced. Ss typically took considerably longer to answer this question than the other four. On this question, the answer which lying Ss were instructed to give was consistent with the version of the tape which they did not see. In other words, those who saw the violent version were told to say that the defendant responded in a very docile manner while those who saw the nonviolent version were told to say he reacted violently. Thus, the same answer could be truthful for one S and a lie for the other. To further cut down on the variability of the answers to this fifth question, Ss were given a slip of paper on which phrases were written summarizing the reaction of the defendant on the version of the tape which they did not see. This was designed to help them recall the form of their lying response. This second segment of the interview is labelled the "factual" segment of lying or truthful behavior in the rest of this study report.

The last two segments of the interviews consisted of questions about feelings or emotions which Ss were experiencing as they watched color slides on a television screen in front of them. One sequence of slides was very pleasant and showed scenes with boats, lakes, chidren playing, and so on. The other sequence of slides showed explicit close-up pictures of people who had been seriously burned. These slides were very unpleasant to look at. Ss were told that immediately before each sequence of slides began, they would see a slide with either the word "lie" or "true" on it. If it said "true" they were to answer truthfully about their feelings. If it said "lie" they were to respond with answers which were the opposite of their true feelings. They were told that some Ss would see two sequences of pleasant slides, some two sequences of unpleasant slides, and some one of each. They did not know which sequence would be prefaced by the word "true" and which with "lie." Actually, the word "true" always prefaced the pleasant sequence, and the word "lie" the unpleasant sequence. Thus the Ss always reported that they were experiencing pleasant feelings, regardless of which slides they were viewing. The order in which the sequences of slides was shown was randomized across Ss. These segments of the interview will subsequently be labelled the "emotional" segments.

In summary, tapes were made of each S: (1) telling the truth in answer to questions about their personal characteristics; (2) lying and telling the truth about the factual content of the videotape they had seen; (3) lying about their feelings as they watched unpleasant slides; (4) telling the truth about their feelings as they watched pleasant slides.

Ss were videotaped with two color cameras as they were being interviewed. One camera shot a close-up shot of the S's head while the other shot a full shot of the head and body, including the feet. The S was seated in a moderately comfortable chair. Two Sony 8600 1/2 inch reel-to-reel videotape recorders were used to record the testimony. A professional video technician ran all recording equipment and adjusted the close-up camera for each S. He also controlled the film chain operating in the control room through which the slides were shown to the S on a television monitor. Both cameras were about 25 feet away from the S and sitting next to each other, thus keeping the angle of the two shots relatively constant. The close-up picture was achieved with a telephoto lens. This camera placement resulted in camera shot angles from slightly to the left of where the officer was sitting. Thus, in looking at the officer as they answered questions, Ss were looking slightly to the left of the cameras. The television monitor on which the slides appeared during the emotional segments was sitting on an eight-inch high platform in front of the officer's desk and slightly to his right. The S thus had to look to the officer's left and slightly down to watch the slides. The monitor was 12-13 feet from the S. The officer could not see the monitor from where he was sitting and consequently from the S's point of view (and in reality) he did not know which slides were being shown when.

Taping procedures were completed for 23 Ss. This resulted in approximately four hours of lying and truthful behavior on tape--two hours of the head shot and two hours of the head-body shot. These tapes had to be edited into master stimulus tapes of no longer than 25-30 minutes to made data collection in a 50 minute class possible.

Whatever the observable cues from which inferences of veracity are made, it is safe to assume that not everyone emits them equally. Fay and Middleton (1941), for example, found that people were judged accurately by as few as 50.9% of the observers and by as many as 62.8%. Some Ss in the present experiment probably emitted many cues which would likely be perceived by observers as indicative of lying both while they were lying and truthing. If by chance a lying segment were selected from such a person and included on a tape for judgment, observers' accuracy scores would probably be spuriously inflated. This would not be because they were able to discriminate between the lying and truthing behavior of this person, but rather because this person looked like he was lying regardless of what he was doing. Other people may not give off many cues which are interpreted as leakage cues resulting from lying. These persons would probably look like they were telling the truth all the time. If a truthful segment of this type of person's behavior were included on a tape, accuracy scores would alse be increased;

once again, not because of the observers' ability to detect this person's veracity, but because of an idiosyncrasy of that S's behavior. Analogously, if the opposite segment of behavior were selected from these two Ss observer accuracy scores would probably be spuriously deflated. An effort was made to solve this problem by creating two tapes, one of which was the exact inverse of the other. Thus, if a truthful segment of an S were selected at random for inclusion on Tape 1, a lying segment from that S would be included on Tape 2, and vice-versa.

Whether a segment of any given S's behavior was included from the factual or the emotional portion of his interview was assigned at random except in cases where the S's failure to follow instructions resulted in only the factual or the emotional segment being available. Eight truthful and eight lying segments were assigned at random to Tape 1. Of these, four of each were factual and four of each were emotional. Tape 2 was created by taking the opposite behavior from the same segment (factual or emotional) for each S.

The format of each master stimulus tape was identical. Each S was shown twice. The truthful segment appeared first and was followed by the "test" segment which was either truthful or not. Before each of these segments, an announcement was made on all tapes which told observers which segment they were about to see (truthful or test) and which S was about to appear. After the test segment, the announcer stated, "That was the test segment for Subject number 1, 2, . . . , 16; please mark your questionnaires." There was then a ten second pause to give observers a chance to do this before the truthful segment for the next S was announced.

Four tapes which included the audio portions of the questions and answers were made: Head Only, Tape 1; Head and Body, Tape 1; Head Only, Tape 2; Head and Body, Tape 2. The final number of master stimulus tapes was doubled by the necessity of making tapes which contained the visual behavior only. This was accomplished by making a copy of each of the above four tapes with the audio recording jack removed during the segments of the Ss' behavior. Thus the tapes to be used in the visual only conditions were identical to those in the video and audio conditions, except for the absence of the audio. The announcements of segments and subject numbers were on all tapes.

All tapes were in color. In the black-and-white conditions they were played by using black-and-white television monitors. Tape 1 was 27 minutes and 15 seconds long, while Tape 2 was 26 minutes and 20 seconds long.

The transcript condition for both tape versions was made from the audio conditions. It included the verbal answers only. All paralinguistic cues such as "ahs," "mmms," and other audible sounds which do have corresponding verbal symbols were removed.

The audio only condition was created by playing the audio and visual tapes with the video portion of the television monitors adjusted so that there was a black screen. Thus the sound quality was identical to the sound which was played in the video and audio conditions.

Collecting the Data

Observers: The observers who judged the veracity of the Ss appearing on the stimulus tapes were 730 undergraduate male and female students enrolled in 18 introductory communication classes during the spring term of 1975 at Michigan State University. The two classrooms in which all classes met each had room dividers which allowed the class to be broken into two groups. This was done by having students with even student numbers on one side of the divider and those with odd student numbers on the other. Thus there were 36 separate intact groups which were randomly assigned to the 28 experimental conditions (the number of cells in the original design was doubled from 14 to 28 with the addition of Tape 2 which was the inverse of Tape 1). The only constraint on this random assignment was that two conditions which contained the audio band were always run at the same time. This was done because the room dividers were not completely soundproof.

Since some question exists as to how closely a sample of students resembles a jury, a second group of adults from the Lansing area also served as observers. Every effort was made to vary the composition of the adult sample so it might match that of a typical jury. The sample included members from various service organizations, veterans groups, and church groups. Businessmen, and a number of individuals presently unemployed were also observers. Because of the difficulties in obtaining adult observers only the eight conditions most like courtroom testimony were shown to this group. They saw both the head and body, and head only conditions with sound in black-and-white and in color. The findings from the adult sample were then compared to the student sample in order to check for differences between samples.

Questionnaire: The questionnaire on which observers indicated their judgments had three pages of instructions. The instructions explained that the research was examining people's ability to detect lying. It described in some detail the circumstances under which the stimulus tapes had been created. For example, it was explained that the first eight people were answering questions about a videotape they had seen and the last eight were answering questions about slides that they were viewing. They were told that it was very important to each of the Ss that they successfully deceive the police officer who was interviewing them. The format by which the various segments on the tape would be presented was also explained. Observers were told that if they put their name and a summer mailing address in the place provided, they would be sent their personal accuracy score. This was done in an effort to motivate the observers to pay close attention to the tapes. It was emphasized that participation was voluntary and they should do so only if they were willing to do their very best to accurately detect when Ss were lying and when they were telling the truth.

An effort was made to avoid a response bias by observers such that they would try to make an equal number of judgments of Ss truthing and lying by explicitly telling them that the particular tape which they saw might contain mostly truthful segments or mostly lying segments, or about equal numbers of each. This was the only deception during data collection. Observers were told to make each judgment independent of their other judgments. They were also told there was no relationship between the length of a segment and whether the S in that segment was telling the truth or lying, and that the same answers could be truthful for some Ss and lies for others.

Observers made judgments dichotomously for each S. Following each judgment on the questionnaire was an 11 point scale on which observers indicated how confident they were in their judgment. There were 16 such sets of measures, corresponding to the 16 test segments on each stimulus tape. Each observer was thus required to make 16 separate judgments of veracity and 16 assessments of their degree of confidence.

The questionnaire also collected information about how successful observers perceived themselves to be at detecting lying, how interested they were in participating in the experiment, and whether they were sitting in a good position to observe the tape. Standard demographic information was also gathered.

Procedures

Two Sony color television monitors or two black-and-white monitors were set up in the rooms prior to the arrival of the observers. When the body only visual conditions were run, the upper third of the monitor was blocked from view with a piece of cardboard. Several minutes after the class was scheduled to begin the instructor introduced $\underline{E}_1$ as a graduate student in the Department of Communication who was conducting some interesting research. $\underline{E}_1$ briefly explained that the research was being funded by the National Science Foundation and was examining individuals' ability to detect lying. It was explained that some students had been interviewed by a police officer the previous fall and had been instructed to lie at certain times and at other times to tell the truth. Observers were told that they would be watching tapes which were made of these individuals, if they chose to participate, and attempting accurately to detect the lying.

The instructions which were on each questionnaire were read aloud and observers were instructed to read along. After the instructions were read, the tape was started and the observers watched the practice example. After the practice example was completed the tape was turned off and observers were asked if they had any questions. When all questions were answered and the *E*s were satisfied that all observers understood what was required of them, the tape was started. The last thing which was said before the tape began was a reemphasis of the importance of making independent judgments without consulting with other observers.

Analysis

The data in this study were analyzed by analysis of variance. In the first analysis, the independent variables were Color/Black-and-White, Visual and Audio/Audio Only, Head and Body/Head Only/Body Only, and Tape 1/Tape 2. The dependent variables were Emotional Accuracy, Factual Accuracy, and Total Accuracy.

To perform subsequent analyses on these data, it was necessary to combine Tape 1 with Tape 2 for each condition. Since equal cells were required in order to sum across the two tapes, the necessary number of observers was randomly deleted from the larger cells. A total of 85 observers were deleted (68 from the student sample, 17 from the adult sample). These data were also analyzed using analysis of variance. The independent and dependent variables for this data set were the same as for the undeleted data set, with the exception that Tape was no longer an independent factor.

In addition to the analyses mentioned above, t-tests were run to compare the cells from the deleted data with the undeleted data to ensure that the original data set was not distorted. Finally, the adult sample data was compared with the student sample data to ensure generalizability from the results found from the student data.

Results and Discussion

In comparing the undeleted data set with the deleted data set, no significant differences could be found. Therefore, the random deletion of observers did not distort the data. For the remainder of the results section, the results reported are from the data set where the two tape versions are combined.

When examining the observer's ability to detect accurately deception of emotional testimony, a significant main effect (p <.05) was found for the Head and Body/Head Only/Body Only condition, Table XXVII (Appendix C). The relationship was such that observers could detect emotional testimony more accurately in the Body Only condition. This finding is consistent with the previous research conducted by Ekman and Friesen (1974). There were no other significant main effects. Also, there were no significant interaction effects.

When examining the observer's ability to accurately detect deception of factual testimony, two significant main effects were found, Table XXVIII (Appendix C). The first of these was in the Visual and Audio/Audio Only condition (p <.001), while the second was in the Head and Body/Head Only/Body Only condition (p <.011). For the first effect, observers were more accurate in the Audio and Visual condition; for the second, observers were more accurate in the Head and Body condition. This latter finding is more relevant to the legal community for two reasons: first, the majority of the testimony offered in the courtroom is factual in nature; second, it is highly unlikely that videotaped testimony will consist of decapitated witnesses.

When examining the observer's total accuracy to detect deception (Emotional accuracy + Factual accuracy), one significant main effect was found, Table XXIX (Appendix C). This effect was found in the condition of Visual and Audio/Visual Only (p <.001). The relationship was such that observers were more accurate in the Visual and Audio condition. The only other condition that approached significance was the Color/Black-and-White condition ($p < .068$). Observers were more accurate in the Color condition, but not significantly. There were no other main effects or interaction effects.

One possible explanation for the lack of a significant main effect for Head and Body/Head Only/Body Only lies in the location of the significant levels for Emotional accuracy and Factual accuracy. The significant level for Emotional accuracy was the Body Only condition, and the significant level for Factual accuracy was the Head and Body condition. It appears that when the two are added together, the significant relationships tend to cancel each other out.

In addition, when examining the Emotional and Factual accuracy in the Visual and Audio/Visual Only condition, it was found that this factor accounted for 10 percent of the variance of Factual accuracy and only .04 percent of Emotional accuracy. Thus, the main effect of Visual and Audio/Visual Only for the observer's Total accuracy comes predominantly from his or her Factual accuracy.

Finally, when examining the student sample analyses with those of the adult sample, it was found that the two samples were comparable, Table XXX (Appendix C). Therefore, the results from the student sample are generalizable to the adult population. The reader should keep in mind that the adult sample was tested under only four conditions. All observers from this sample saw and heard the testimony of the stimulus subjects. Therefore, the Visual and Audio/Visual Only factor is not relevant for the adult sample. Also, the reader may note that where the Color/Black-and-White factor approached significance for the student sample, it did not do so for the adult sample. This is due to the fact that the number of subjects in the student sample was much larger than the adult sample. Thus, the chances of getting significant differences were greatly increased in the student sample. Therefore, the finding that subjects are more accurate in the Color condition may be slightly distorted due to the large number of subjects tested.

Overall, these results suggest that nonverbal leakage from the body facilitates detection of deception, when the witness is testifying concerning the state of his emotions. However, when testimony is factual in nature, the verbal content serves as an important component to identifying deception. Color as opposed to black-and-white does not seem to contribute to the accuracy of detecting deception. In terms of use of videotape in the courtroom, these findings would suggest the use of a camera shot which includes the entire body and head of the witness. Such a shot would maximize the detection of deception for both emotional and factual testimony. The possibility also exists that the present construction of the witness stand blocks the jurors' vision of nonverbal body cues which may aid in the identification of deceptive emotional testimony.

GENERAL CONCLUSIONS

From the outset, our research has centered on a single objective: to provide data bearing upon one issue relating to the possible use of videotape in courtroom trials. Obviously, policy decisions regarding the introduction of this technology into the legal system hinge on numerous complex legal, social, and behavioral issues. Hence, we prefer to be both relatively brief and reasonably cautious in drawing conclusions, permitting the research to "speak for itself" in those areas relevant to policy making. Although the question of whether jurors respond differently to videotaped trial presentations than to live ones is an important one, we are cognizant that many other considerations also affect the extent to which videotape becomes a more prominent part of the courtroom communication milieu.

Having underscored this point, we offer the following as our most general conclusion. Within the procedural confines of our research, there is no evidence to suggest that the use of videotape exerts any deleterious effects on the juror responses studied; in fact, as far as retention of trial-related information is concerned, it appears that videotaped testimony sometimes results in higher retention levels. Given this assertion, we shall temper it immediately by mentioning some of the limitations (or the "procedural confines") that should be considered when evaluating it.

First, our research has focused almost entirely on matters commonly dealt with in civil trials. We reached this decision consciously, since the most extensive use of videotape, at least until this time, has been in the civil area. Whether similar results would obtain in criminal trials remains uncertain, though we are presently unaware of any compelling reasons for arguing that the switch from the civil to the criminal domain should dramatically alter the pattern of findings.

Second, all of the studies described have dealt with simulated or reenacted trials or trial segments, rather than actual trials. Having noted this fact, we hasten to add that in several of the studies jurors were led to believe they were participating in actual trials, and the available evidence indicates that they accepted the veracity of the situation. Nevertheless, there were also some studies where participants were aware that they were role-playing jurors in a simulated trial. To the extent that role-playing jurors and actual jurors behave differently (a possibility we will comment briefly upon later), the results of studies using role-playing jurors may be subject to some modification in an actual trial situation.

Third, even within the realm of civil litigation, we have sampled from a relatively small number of types of cases -- i.e., automobile injury, industrial accident, will contest--and over relatively few time periods of trial activity--i.e., less than an hour of testimony through a three and one-half hour trial. Again, as with the issue of using civil cases entirely, the importance of these limited samples is directly related to the number of commonsense arguments one can construct concerning the likelihood that other types of case content or other lengths of trial activity might yield different outcomes. Regarding the former, we have been unable to think of any powerful reasons why a change in case content (e.g., going from an automobile injury case to a slip-and-fall case) would be likely to alter drastically the findings of our studies. On the other hand, we have already mentioned the possibility that trial length could affect the differences in juror retention of trial-related information that were observed between live and videotaped presentations of testimony. Specifically, we granted that while videotaped testimony may generate greater juror interest--and consequently, greater retention of trial-related information--for the relatively short time periods studied, this potential advantage of the videotape medium might be dissipated in a lengthy trial. Note that we do not necessarily believe this would be the case, but we are aware that such an argument could reasonably be advanced. Thus, as we have already emphasized, future research should aim at determining whether the relationship between the medium by which testimony is presented to jurors and their subsequent retention of trial-related information holds for a wider range of time periods than has been examined in our studies.

Finally, several of our studies have yielded no significant differences in juror responses to live and videotaped trial materials. From an applied perspective, this lack of difference creates no problems since it suggests that the two presentational media are comparable. Unfortunately, it does pose some interpretative difficulties, for, as we have stressed, the logic of the statistical model underlying the research prevents us from attaching a precise level of significance to our findings of no differences. Stated differently, failure to reject the statistical null hypothesis in this case, failure to detect significant differences between juror responses to live and videotaped trial materials--may reflect a true absence of differences between the two presentational media or it may represent an instance of Type II error. Since the likelihood of Type II error is affected by numerous considerations (e.g., sample size, measurement error, etc.), we can only assess the probable validity of a no differences finding by considering the adequacy of our research procedures as they relate to these various considerations.

In one or two instances, we concede that procedural difficulties contributed to the high likelihood of Type II error. Thus, in the first study dealing with deletion of inadmissible testimony, a number of the jurors originally scheduled to participate in the research were called away to serve in actual trials, and as a consequence, the sample size available for the various trial conditions was severely depleted. This sharp attrition in jurors undoubtedly sharply decreased the power of our tests to detect differences in juror responses to the varying amounts of inadmissible evidence used in the trials.

In most cases, however, we feel we have minimized those factors likely to culminate the Type II error. For the majority of the studies sample size has been robust; the research has been conducted in realistic settings; and the instruments used to measure juror responses have been carefully pretested and refined. All of these considerations point toward a reasonably powerful test of the null hypothesis, and we are quite confident that, in most cases, our failure to reject the null results from a lack of systematic differences in juror responses to the two presentational media. Beyond this assertion, the logic of the statistical model itself precludes further evaluation.

Having established a cautious perspective from which to view our findings, several positive aspects of the research merit emphasis. First, the realistic quality of the reenactments and simulations employed auger well for the validity of the findings; in fact, we believe - and a number of legal experts agree--that this research represents the best quality of simulation yet achieved in studies linking the legal and psychological systems. In no instances did jurors involved in the courtroom studies question that they were participating in an actual trial. The value of such realistic simulation lies not, of course, in its own sake but rather in the fact that jurors probably responded as they would in an actual trial setting. For those who have questioned the extent to which the results of laboratory studies conducted in other than courtroom surroundings can be validly generalized to real trial situations, our success in simulating a realistic climate should be encouraging.

This is not to say that the results of the subset of studies employing role-playing jurors--i.e., those studies where participants clearly realized they were not serving as jurors in real trials--should automatically be dismissed as suspect. Among members of the legal community, there seems to be a credo of faith which holds that actual jurors will respond differently to their task than will persons who are merely asked to play the role to jurors. Although this view is intuitively appealing, we have been unable to discover much empirical evidence dealing with the issue of comparability of responses between actual and role-playing jurors. Impressionistically, we concluded that most of the participants in our role-playing studies accepted the charge to take their task seriously and enter conscientiously into their roles as jurors. Unquestionably there are differences between actual and simulated trial situations; still, we are not necessarily convinced that these variations ensure that the responses of actual and role-playing jurors will differ drastically. What is needed are studies comparing the profiles of actual and role-playing jurors on a number of response dimensions. For while it is optimally desirable to conduct research with real jury panels, the day-to-day business of the court, which does and should take precedence over the research needs of social scientists, often makes it difficult to secure actual jurors. If it could be demonstrated that actual and role-playing jurors do not differ markedly in their responses to trial materials--or alternatively, if it were possible to specify the ways in which the two groups do differ--the validity of studies using role-playing jurors would be less problematic.

To a large extent, one's assessment of the relative importance of the research described here hinges on his or her views concerning two issues. The first involves the nature of the trial process itself. Our research has been grounded in the assumption that a trial is a rule-governed, information processing event and that juror decision-making should be influenced primarily by the facts and evidence of the case. Given this assumption, it makes good sense to worry about the possible effects of the videotape medium on such juror behaviors as retention of trial-related information and actual verdicts and awards. On the other hand, alternative assumptions about the nature of the trial process are certainly defensible, and if one accepts an alternative assumption, other research priorities may be implied. For example, it has been suggested to us that a trial is most usefully conceived of as a ritualistic or dramatistic rite: that the trial serves the function of satisfying society's need for an institution that permits orderly, non-violent resolution of disputes. Acceptance of this dramatistic viewpoint implies a different ordering of research priorities; specifically, questions concerning the extent to which the use of videotaped trial materials adds or detracts from the dramatistic impact of the trial would receive primary attention. Hence, we grant that our decisions to pursue certain questions rather than others rest on our particular view of the nature and function of the trial process.

At an even more basic level, one's assessment of the relative significance of our findings depends on his or her response to a fundamental epistemological question: what kinds of evidence constitute the best grounds for making assertions about the probable effects of videotaped trial materials on juror response? Obviously and not surprisingly, we subscribe to the empiricist tenet that systematically gathered behavioral data, drawn from representative samples of juror respondents, provide the soundest grounds for making inferences about the courtroom effects of videotape. Thus, while the findings of these studies stop far short of establishing definitive answers to the numerous question raised, they provide an improved climate for drawing inferences, since some data are better than no data at all. With this modest claim, we rest our case.

GRANT INFORMATION DISSEMINATION

As mentioned in our report on Workshop II, our attitude towards informing the public about the research traveled the rather long road from show-and-tell at Workshop I to a genuine desire to fulfill the informational needs of the legal, governmental, and academic communities. This section describes our efforts in information dissemination.

PUBLICATIONS

In the beginning, there was no mailing list. To develop one, we asked everyone we knew who had some interest in the area, or who had been called upon as resource persons during the development of the grant proposal, or who had been appointed to the Advisory Panel, to submit a list of persons who should be on such a list. We found names and addresses for major bar and other law journals in every state as well as communication and social science publications with wide national circulations. At first, we attempted a news release format to generate interest in the research. This method proved to be inappropriate: we were involved in a project that made progress, but there were no real bulletins warranting the shotgun approach a news release seems to represent. Nevertheless, our first release generated some more names before we abandoned the technique. We then settled upon a regular newsletter as our primary means of correspondence with those on the mailing list. It described progress in the research area and provided upcoming workshop information as such materials became available. We called it SCAN, to represent the scanning lines of a television picture tube - and how one was likely to read it - and published it quarterly (see Appendix D). In every SCAN, we encouraged people to write us for information or for a slot on the mailing list - and they did. Judging from the volume of new names each issue generated, those little SCANS got around, as we hoped they would.

Approximately six weeks prior to each workshop, we sent a registration packet and program to our correspondents with a return card upon which they could indicate their intention to attend (See Appendix D). Although only a small percentage of those on our mailing list attended each workshop, the registration packets had an uncanny way of generating even more correspondence with new people.

At each workshop save the last, we distributed to attendees a research progress report, then announced the availability of these in our next SCAN. The circulation of these reports prompted requests for them; everyone who requested any kind of information from us automatically was included on the mailing list.

During the course of the research, the grant team was invited to submit articles about our progress to a number of law and social science publications. These are:

Judicature (December, 1974)
Journal of Communication (Summer, 1974)
Michigan Bar Journal (May, 1975)
Law Enforcement Communications (June, 1975)
Brigham Young University Law Review (Summer, 1975)
Personality and Social Psychology Bulletin (in press)

book chapter:
Miller, G.R., "The effects of videotaped trial materials on
juror response." In G. Bermant (Ed.)
Psychology and the Law: Research Frontiers
Lexington, Mass.: D.C. Heath (in press)

In addition, various publications wrote about us, including the Chicago Daily News (Aug. 5, 1975), and Mosaic (July-August, 1975). Now, at the conclusion of the grant, our mailing list includes over 700 persons.

Generally speaking, the workshops provided us with our best opportunities to receive feedback on the research effort from knowledgeable members of the legal and academic sectors. In return, we provided programs designed to encourage discussion of the issues our research had raised and chances for people who were interested but uninitiated to learn specifically about our research and generally about the state of videotape in the legal system. The workshops also allowed us to neatly dissect our research into phases and concentrate our energies anew on each one. A brief description of each of our three workshops follows:

Legal Communication Workshop I
March 14-16, 1974
The Atlanta American, Atlanta, Georgia

Program Participants

U.S. Circuit Court Judge Joseph Weis, Pittsburgh, PA
MSU Department of Communication Research Team
Criminal Court of Record Judge Murray Goodman, Dade County, FL
Dr. Arthur Konopka, A.P.R.T., NSF, Washington, D.C.
Alan Morrill, Morrill, Koutsky, Klomann and Chuhak, Chicago, IL
Laurence Stone, General Manager, Video Record, Inc., Columbus, OH
Dr. Colby Lewis, Department of Telecommunications, M.S.U., East Lansing, MI
Erie County Court of Common Pleas Judge James McCrystal, Sandusky, OH

For this first workshop, the 50 participants attending were almost equally divided among judges, practicing attorneys, court reporters, governmental representatives, and representatives from colleges and universities in the law and social science fields. These participants responded enthusiastically to the presentation of the research findings, informal interactions among all workshop participants, and small group sessions on the various subtopics under the general heading of video tape in the legal system. Response was very positive to informal interaction among workshop participants, and we hereafter built into our workshop programs more opportunities for discussion and analysis of research findings on a more casual basis, an activity that allowed those with extensive videotape experience to answer questions from neophytes on an individual level. This first workshop also taught us that we would likely be able to extend conference duration by a day with good success, due to the growing amount of information to which we were acquiring access and could pass along to our attendees.

Legal Communication Workshop II
January 29 - February 1, 1975
The Mansion Inn, Sacramento, California
PSA San Franciscan, San Francisco, California

Program Participants

- Dean Gordon Schaber, faculty and staff members, McGeorge School of Law, University of the Pacific, Sacramento, CA
- MSU Department of Communication Research Team
- U.S. Supreme Court Justice (Ret.) Thomas C. Clark
- Ernest H. Short, Ernest H. Short and Associates, Sacramento, CA
- Guy Kornblum, Atty., Adjunct Faculty, Hasting College of Law, University of California, San Francisco, CA
- Paul Rush, Television Office, University of California - Berkeley
- Dr. Percy Tannenbaum, Graduate School of Public Policy, University of California - Berkeley
- Dr. Gordon Bermant, Battelle Seattle Research Center, Seattle, WA
- Dr. Gerald Williams and Lawrence Farmer, J. Reuben Clark School of Law, Brigham Young University, Provo, Utah
- Dr. Arther Konopka, A.P.R.T., NSF, Washington, D.C.

After our first workshop in Atlanta, events and attitudes within the realm of legal communication research as manifested in the work of the MSU grant team led us to reexamine the workshop role and gradually to expand it.

Truly hindsight is a marvelous thing. We utilized it to its fullest after Atlanta, though perhaps not entirely on a conscious level. We were pleased with the response of our Atlanta attendees to the research and to each other, but we realized we were, in fact, talking to ourselves, and were not digging for the issues, nor attempting to solicit legitimate intellectual counter stands on videotape use. In the meantime, too, our small-scale-but-steady efforts at public information had broadened our base. By January, 1975, we were corresponding with a great many practicing attorneys, with judges in federal, state, and municipal courts, with law students and law school faculty, with a surprising number of court reporters, with businessmen and doctors and a wealth of others. Although when the idea for holding the second workshop in California was first discussed, we were still dealing only with the fairness of regionalizing the function, it soon became evident that the west coast location would provide us with a wealth of related research, a high level of interest among legal professionals, and a larger attendance. We were able to benefit from all of these in Sacramento/San Francisco, and went home feeling we had really performed a service this time--and could do it again. From informal comments of various attendees at the conclusion of the California workshop, we sensed an eagerness to participate "next time".

All this meant, as mentioned at the beginning of this section, that we saw ourselves differently in terms of our functions as a funded research project. As before, the research and the reports thereon constituted our primary justification and always held priority over any other functions. But the response to this workshop led us to understand just how compelling information dissemination can be. Thus, we shifted rather naturally from a mere reporting function to one in which the grant team began to serve as the instigator of a continuing forum on the issues related to introducing communication technology into the judicial process. Simply stated, we began to marry information we had gathered to people we had met as a result of grant activities. We gave everyone the opportunity to come together at the workshops, either to support one another or to lock horns, but certainly to discuss and to ruminate and to go home thinking.

We strove for this in California in a mostly instinctive, tentative manner, perhaps not really knowing what would happen when so many points of view, so many issues and extrapolations of issues were tossed together. From all reports, it seemed to have been a very stimulating way to hold a conference.

At the California workshop, we did deliberately attempt to give our attendees a variety of experiences related to legal communication research, as well as plenty of time to informally interact with one another, as we had proposed at the end of the Atlanta workshop. Consequently, our group was able, in a couple of instances, not only to meet the people reporting on the research but also to view the facilities and equipment actually utilized. McGeorge School of Law, University of the Pacific, hosted the group in a sit-down tour of their renowned Courtroom of the Future, and although the planned tour of Hastings College of Law was rained, snowed, and hailed out of formal existence, the school is located two blocks from the PSA San Franciscan Hotel, where the San Francisco portion of the workshop was held, easily accessible to curious workshop attendees in better weather. The nature of the presentations encouraged interactions among people who probably didn't know one another before, and ably represented types of projects ongoing within the increasingly broad field of legal communication research.

Legal Communication Workshop III
July 24-27, 1975
The Sheraton Plaza, Chicago, Illinois

Program Participants

Dr. Gerald Williams and Dr. Lawrence Farmer, J. Reuben Clark School of Law, Brigham Young University, Provo, Utah
Mr. Edmund Sinnott, Atty, Trialvision/Depovision, Chicago, IL
Ernest Friesen, former Asst. U.S. Attorney General, Denver, CO
MSU Department of Communication Research Team
Col. Myron Birnbaum, USAF (Ret.) and Maj. John Howell, Judge Advocate General's Office, USAF, Washington, D.C.
B. Thomas Florence, Ernest H. Short and Associates, Sacramento, CA
Eugene Sattler, National Shorthand Reporters' Association, New York, NY
Many Connors, Stanford University, Stanford, CA
James Alfini, Ass't Director of Research, American Judicature Society, Chicago, IL
Joseph Ebersole, Deputy Director, Federal Judicial Center, Washington, D.C.
California Court of Appeal Judge Robert K. Puglia, Sacramento, CA
Dr. Gordon Bermant, Battelle Seattle Research Center, Seattle, WA
Dr. Arthur Konopka, A.P.R.T., NSF, Washington, D.C.

We had vowed, in planning for Workshop III, to provide our attendees with a mixed bag in our final program. To our satisfaction, post workshop feedback indicated that most participants were delighted and stimulated by this approach. In fact, many pronounced this final effort our best in terms of information exchange. Truly, there was much to be had: Mr. Sinnott related his experiences using videotape systems in the taking of evidence and recording actual trials, also demonstrating the specially modified videotape equipment he has developed for those purposes. Drs. Williams and Farmer gave a final analysis of the data from their multi-media trial comparison involving live, color videotaped, black-and-white videotaped, audio taped, and read transcript presentations. Colonel Birnbaum and Major Howell reported on developments in the use of videotape in military justice and other legal processes and described a new technique for long-distance recording at videotape depositions. Mr. Florence described research activities related to evaluation of impact of videotaped legal proceedings on jurors, judges, and attorneys and the administrative and behavioral effects of the use of videotape technology on a continuing basis in the courts. Mr. Sattler presented the National Shorthand Reporters' stance on the use of videotape in the courtroom. Ms. Connors described behavioral research ongoing at Stanford in the area of responses to videotape. Other named participants acted as respondents to the described presentations. As at the California Workshop, we videotaped all sessions and made the tapes available for dubbing after the workshop. We distributed the 1975 Brigham Young University Law Review, which presented a symposium on the use of videotape in the courtroom, to attendees.

While acknowledging our function to provide information at the workshops, we, too, benefited from the diversity of the people we met, the opportunity to plan and implement such events, and the discipline of presenting our findings to highly skilled audiences, well-versed in the issues confronting the legal system.

OTHER COMMUNICATION ENDEAVORS

During the course of the funding period, we have been asked by a number of organizations to address their memberships on the subject of our research. Often we initiated such encounters in order to recruit adult subjects for our studies. Most groups we addressed showed a genuine interest in the research and concern for the potential effects of videotape in the legal system. Our presentations to fraternal, civic, church, and parent/teacher organizations netted a willing cadre of subjects when we needed them. And, in turn, our subjects--whether volunteers or unsuspecting jurors--expressed almost universal enthusiasm for their experiences at the conclusion of the studies in which they participated. We are most grateful to all of them and glad to have had the uncommon experience of conducting a research project with a public.

ADVISORY PANEL MEETINGS

It would have required amazing sleight of hand for a group of social scientists to successfully complete a series of studies dealing so intimately with the legal system had we not had the wise counsel of our Advisory Panel, whose membership is noted in the Acknowledgements (Appendix E). At the outset of each research phase, we asked them to meet at MSU with us to hear our plans for the next studies in the series. Particularly at the beginning of the funding period, when we still had much to learn about the rules and procedures that govern the legal system, their advice and eager participation helped set our course, steering us away from false issues and maximizing the efficacy of our dealings with court administrators, judges, and attorneys.

Each Advisory Panel meeting provided both researchers and panel members the chance to share current developments in the field of legal communication, to present ideas for studies or future research, and to analyze proposed study designs for their applicability to the legal system and their credibility with the members of the legal profession. Thus, unlike many University-based research teams, we never concocted our schemes in the isolation of the ivy-covered tower. We were committed to designing a program of research that would have real usefulness, once completed, for the policy-makers of the legal system. Our Advisory Panel members always provided us with source materials, sample cases and precedents when requested. They dug into their files and their memories for depositions and useful testimony to help us develop the stumulus materials for our major studies. They consistently provided thoughtful commentary on our theory and practice.

APPENDIX A

VIDEOTAPE EQUIPMENT

The following listing, divided according to unit type, represents the permanent equipment inventory for our program of research. Rental equipment, when used, is described in the Technology section of this report under the appropriate stimulus heading. The reader is reminded that equipment prices listed herein were those paid in 1973.

UNIT	QUANTITY	UNIT COST
Videotape Recorders		
Sony 3650 (black-and-white)	2	$ 1150.00
Sony 8600 (color)	1	1150.00
Cameras		
Sony AVC 3200 (w/microphone and carrying case)	3	$ 784.00
Monitors		
Sony 192 U (black-and-white)	3	$ 300.00
Sony Trinitron receiver (color)	2	500.00
RF Equipment		
RFU 104FW RF adaptor	1	$ 85.00
RFC-5 RF cable	2	8.50
UHF adaptor	3	3.90
Cables and Miscellaneous		
B/T MT2 splitter	1	$ 7.20
Smith 3150 cart	3	50.50
LC100 carrying case (for 8600)	1	35.00
CCF 10 32' camera cable	3	11.00
TD-1 tripod dolly	3	50.50
Microphone Equipment		
MX900 audio mixer	1	$ 250.00
ElectroVoice 635 microphone	3	56.70
Atlas MS12 floor stand	2	9.50
Atlas D55 desk stand	1	2.99
25' microphone cable	3	9.15
Total Permanent Equipment Cost		$ 8634.94

APPENDIX B

TABLE I

The Effects of Live Versus Videotape Trial Presentation

Summary of verdict responses for jurors in live and tape conditions.

	Clark Not Neg	Both Neg	Clark Neg
Live	19	12	13
Tape	14	7	20

$\chi^2 - 3.45$; $\underline{p}>.15$

	Clark Not Neg	Clark Neg - Both Neg
Live	19	25
Tape	14	27

$\chi^2 = .398$; $\underline{p}>.53$

	Clark Not Neg - Both Neg	Clark Neg
Live	31	13
Tape	21	20

$\chi = 2.55$; $\underline{p}>.11$

	Clark Not Neg	Clark Neg
Live	19	13
Tape	14	20

$\chi^2 = 2.18$; $\underline{p}>.10$

TABLE II

Juror Information Retention I

Measures of central tendency for pretest manipulation data

	Mean	Median	Mode
Strong Witness	1.19	1.0	1
Weak Witness	2.46	2.0	2
Modal Witness	2.35	2.5	3

TABLE III

Juror Information Retention I

Mean information retention scores for the continuous information retention measure and analysis of variance summary

		Mode of Presentation	
		Monochromatic	Color
Type of Witness	Strong	271.03	268.21
	Weak	270.55	270.09
	Modal	264.70	263.82

ANOVA

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F
Type of Witness	1451.68	2	725.84	3.77(p .05)
Mode of Presentation	94.79	1	94.79	1
Type X Mode	52.40	2	26.20	1
Error	36967.27	192	192.54	
Total	38566.15	197		

TABLE IV

Juror Information Retention I

Mean information retention scores for the dichotomous information retention measure and analysis of variance summary

		Mode of Presentation	
		Monochromatic	Color
Type of Witness	Strong	47.61	46.33
	Weak	47.55	47.09
	Modal	44.58	43.94

ANOVA

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F
Type of Witness	370.58	2	185.29	4.88(p .05)
Mode of Presentation	30.73	1	30.73	<1
Type X Mode	6.09	2	3.05	<1
Error	7288.06	192	37.96	
Total	7595.46	197		

TABLE V

Juror Information Retention I

Mean credibility scores in each condition and analysis of variance summary

		Mode of Presentation	
		Monochromatic	Color
Type of Witness	Strong	69.42	70.18
	Weak	59.76	62.03
	Modal	67.03	62.03

ANOVA

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F
Type of Witness	2648.73	2	1324.36	16.56($p<.05$)
Mode of Presentation	21.34	1	21.34	<1
Type X Mode	485.86	2	242.93	3.04($p<.05$)
Error	15359.94	192	80.00	
Total	18515.86	197		

TABLE VI

Juror Information Retention I

Mean authoritativeness scores in each experimental condition and analysis of variance summary

		Mode of Presentation	
		Monochromatic	Color
Type of Witness	Strong	48.79	48.85
	Weak	44.24	45.27
	Modal	46.58	44.12

ANOVA

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F
Type of Witness	635.28	2	317.64	4.21($p<.05$)
Mode of Presentation	10.23	1	10.23	<1
Type X Mode	106.76	2	53.38	<1
Error	14503.94	192	75.54	
Total	15256.21	197		

TABLE VII

Juror Information Retention I

Mean character scores in each experimental condition and analysis of variance summary

		Mode of Presentation	
		Monochromatic	Color
Type of Witness	Strong	55.33	55.85
	Weak	53.58	54.39
	Modal	53.55	53.79

ANOVA

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F
Type of Witness	140.43	2	70.22	1.47
Mode of Presentation	13.66	1	13.66	<1
Type X Mode	2.74	2	1.37	<1
Error	9181.21	192	47.82	
Total	9338.04	197		

TABLE VIII

Juror Information Retention I

Information retention scores for subjects in the four conditions and analysis of variance summary*

		Witness Type	
		Strong	Weak
Medium	Color	34.59	33.31
	Monochromatic	39.72	36.17

ANOVA

Source	SS	df	F
Rows (Medium)	464.00	1	6.55 <.05 (6.58)<.05
Columns (Type Witness)	168.07	1	2.38 (2.39)
Interaction	37.56	1	<1
Error	7929.16 7966.72	112 (113)	

*The values in parentheses are those appropriate after interaction is incorporated into the error term.

TABLE IX

Juror Information Retention I

Witness authoritativeness ratings for subjects in the four conditions and analysis of variance summary*

		Witness Type	
		Strong	Weak
Medium	Color	80.93	71.34
	Monochromatic	72.00	70.24

ANOVA

Source	SS	df	F
Rows (Medium)	730.01	1	3.46 (3.43)
Columns (Witness Type)	933.11	1	4.43 <.05 (4.38)<.05
Interaction	444.22	1	2.11
Error	23613.72 (24057.94)	112 (113)	

*The values in parentheses are those appropriate after interaction is incorporated into the error term.

TABLE X

Juror Information Retention I

Witness character ratings for subjects in the four conditions and analysis of variance summary*

		Witness Type	
		Strong	Weak
Medium	Color	75.72	71.17
	Monochromatic	69.93	72.00

ANOVA

Source	SS	df	F
Rows (Medium)	178.76	1	1.86 (1.82)
Columns (Witness Type)	44.69	1	1 (<1)
Interaction	317.80	1	3.31
Error	10743.79 (11061.59)	112 (113)	

*Values in parentheses are those appropriate after interaction is incorporated into the error term.

TABLE XI

Juror Information Retention I

Witness safety ratings for subjects in the four conditions and analysis of variance summary

		Witness Type	
		Strong	Weak
Medium	Color	26.48	23.00
	Monochromatic	23.21	23.52

ANOVA

Source	SS	df	F
Rows (Medium)	55.17	1	2.99
Columns (Witness Type)	72.97	1	3.95<.05
Interaction	104.31	1	5.65<.05
Error	2067.24	112	

TABLE XII

Juror Information Retention : **Replication**

Witness qualification ratings for subjects in the four conditions and analysis of variance summary*

		Witness Type	
		Strong	Weak
Medium	Color	26.52	22.66
	Monochromatic	24.38	22.90

ANOVA

Source	SS	df	F	
Rows (Medium)	26.08	1	1.17 1.16	
Columns (Witness Type)	207.11	1	9.26 9.19	<.05 <.05
Interaction	41.04	1	1.83	
Error	2505.31 2546.35	112 113		

---

*Values in parentheses are those appropriate after interaction is incorporated into the error term.

TABLE XIII

Juror Information Retention I

Witness dynamism ratings for subjects in the four conditions and analysis of variance summary*

		Witness Type	
		Strong	Weak
Medium	Color	22.10	18.97
	Monochromatic	20.07	17.38

ANOVA

Source	SS	df	F	
Rows (Medium)	95.04	1	5.20 (5.24)	<.05 <.05
Columns (Witness Type)	246.22	1	13.46 (13.57)	<.05 <.05
Interaction	1.45	1	1	
Error	2048.35 (2049.80)	112 (113)		

---

*Values in parentheses are those appropriate after interaction is incorporated into the error term.

TABLE XIV

Juror Information Retention II

Information retention scores for subjects in the four conditions*

	T_1	T_2	T_3	T_4
Live	9.8	8.3	7.7	7.6
Color	9.0	8.6	8.5	7.8
B & W	9.4	9.2	7.8	8.0

*Numbers indicate mean retention score for the interval.

TABLE XV

Juror Information Retention II

Summary of credibility ratings for trial participants for subjects in the three conditions

	Authoritativeness		Character	
Witness	Live	81.5	Live	68.4
	Color	85.1	Color	70.0
	B & W	82.0	B & W	64.0
	F < 1		F = 1.69	
Mr. Stein: Proponent's Attorney	Live	76.6	Live	69.4
	Color	76.9	Color	70.7
	B & W	78.4	B & W	68.4
	F < 1		F < 1	
Mr. White: Defendant's Attorney	Live	77.7	Live	69.6
	Color	74.0	Color	70.0
	B & W	79.1	B & W	67.0
	F < 1		F < 1	

TABLE XVI

Juror Information Retention II

	Correlations of witness with attorney credibility scores			
	Witness and Mr. Stein	Witness and Mr. White	Mr. Stein and Mr. White	Difference
Authoritativeness	.51	.12	.24	$t = 1.95$ $df = 28$ $p = .10$
Character	.63	.03	.24	$t = 3.36$ $df = 28$ $p < .001$

TABLE XVII

Effects of Physiological Arousal on Information Retention I

Emotionality Manipulation Check-Cell Means,
t Tests and Probablitity Values*

Male	Non-Emotional	Emotional	*t*	$p^a <$
Witness (Angry/calm)				
Black & White	3.51	4.70	2.64	.011
Color	4.14	4.20	.14	.886

Female	Non-Emotional	Emotional	*t*	$p^a <$
Witness (Happy/sad)				
Black & White	5.63	5.73	.31	.755
Color	5.97	6.20	.78	.439

---

*Higher numbers reflect more emotionality

[a] Two-tailed

TABLE XVIII

Effects of Physiological Arousal on Information Retention I

Mean Arousal Level in All Conditions Summing Across Time Frames

			Mode	
			Black and White	Color
Testimony	Non-Emotional	St.	7.78	5.94
		Pk.	8.44	6.46
	Emotional	St.	8.62	6.04
		Pk.	9.41	6.24

TABLE XIX

Effects of Physiological Arousal on Information Retention I

Mean Arousal Level in Each Condition Thirty Seconds Prior to the Start of the Stimuli Tapes	
Non-Emotional	
Color	6.80
Black and White	7.80
Emotional	
Color	7.88
Black & White	6.31

TABLE XX

Effects of Physiological Arousal on Information Retention I

Repeated Measures Analysis of Covariance for Both Tapes

	df	MS	F	P<
Non-Emotional				
D.V.				
Start	1	140.22	4.03	.052
Error	38	34.77		
Peak	1	222.45	5.05	.031
Error	38	44.06		

	df	MS	F	P<
Emotional				
D.V.				
Start	1	32.02	1.12	.297
Error	31	28.50		
Peak	1	53.62	1.45	.239
Error	31	37.11		

TABLE XXI

Effects of Physiological Arousal on Information Retention Replication

Repeated Measures Analysis of Covariance for Experiment II
Start and Peak Levels

	df	MS	F	P<
Dependent Variable				
Start Level	2	36.17	1.12	.332
Error	56	32.18		
Peak Level	2	41.58	<1	
Error	56	84.19		

TABLE XXII

Witness Information Retention

The Analysis-of-Variance Summary of Information Retention.

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. of F
Camera-No Camera	1.47	1	1.47	.015	.999
Time Delay	5553.21	2	2776.60	28.44	.001
Camera-No Camera X Time Delay	72.50	2	36.25	.371	.999
Residual	9372.50	96	97.63		
Total	14998.59	101	148.50		

The Analysis-of-Variance Summary of Witness Knowledge.

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. of F
Camera-No Camera	1851.21	1	1851.21	1.25	.265
Time Delay	72241.55	2	36120.77	24.43	.001
Camera-No Camera X Time Delay	405.92	2	202.96	.14	.999
Residual	141939.69	96	1478.54		
Total	216210.46	101	2140.79		

The Analysis-of-Variance Summary of the Seven Point Nervousness Scale.

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. of F
Camera-No Camera	5.27	1	5.27	2.56	.109
Time Delay	7.25	2	3.63	1.76	.175
Camera-No Camera X Time Delay	1.00	2	.50	.24	.999
Residual	197.70	96	2.06		
Total	211.37	101	2.09		

The Analysis-of-Variance Summary of the One Hundred Point Nervousness Scale.

Source of Variation	Sum of Squares	df	Mean Square	F	Sig. of F
Camera-No Camera	2783.71	1	2783.71	4.95	.027
Time Delay	567.05	2	283.53	.50	.999
Camera-No Camera X Time Delay	1208.02	2	604.01	1.07	.347
Residual	53445.60	95	562.59		
Total	57958.95	100	579.59		

APPENDIX C

TABLE XXIII

The Effects of Full-Screen Versus Split-Screen Presentation

Summary of verdict responses for jurors in the two conditions

	Clark Neg	Both Neg	Clark Not Neg
Split	11	8	4
Full	15	5	11

$\chi^2 = 3.46$; *p*>.18

	Clark Both	Clark Not Neg
Split	19	4
Full	20	11

$\chi^2 = 2.1$

	Clark Neg	Clark Not Neg Both Neg
Split	11	12
Full	15	16

$\chi^2 = <1$;*p*>.90

	Clark Neg	Clark Not Neg
Split	11	4
Full	15	11

$\chi^2 = <1$; *p*>.30

TABLE XXIV

The Effects of the Deletion of Inadmissible Testimony from a Videotaped Trial

Summary of the verdict responses for jurors
in the seven conditions of inadmissible testimony.

	Verdict		
Number of Deletions	Clark Neg	Both Neg	Clark Not Neg
0	10	3	2
1	11	9	0
2	13	4	3
3	9	3	6
4	5	2	2
5	15	1	4
6	9	5	1

$\chi^2 = 17.54$; $p > .20$

Number of Deletions	Clark Neg - Both Neg	Clark Not Neg
0	13	2
1	20	0
2	17	3
3	12	6
4	7	2
5	16	4
6	14	1

$\chi^2 = 9.52$; $p > .20$

Number of Deletions	Clark Neg	Both Neg - Clark Not Neg
0	10	5
1	11	9
2	13	7
3	9	9
4	5	4
5	15	5
6	9	6

$\chi^2 = 3.25$; $p > .80$

Number of Deletions	Clark Neg	Clark Not Neg
0	10	2
1	11	0
2	13	3
3	9	6
4	5	2
5	15	4
6	9	1

$\chi^2 = 7.50$; $p > .30$

TABLE XXV

The Effects of the Deletion of Inadmissible Testimony from a Videotaped Trial

Mean amount of award made by jurors viewing trials
with varying amounts of inadmissible testimony.

Number of Deletions	Number of Awards	Number in Condition	Mean Award
0	10	15	$21,000
1	11	20	14,863
2	13	20	18,461
3	9	18	17,055
4	5	10	21,940
5	15	20	17,200
6	9	15	22,500

TABLE XXVI

The Effects of the Deletion of Inadmissible Testimony from a Videotaped Trial

Summary of verdict responses for jurors exposed
to varying amounts of inadmissible testimony.

Number of Deletions	Clark Neg	Both Neg	Clark Not Neg
0	10	16	15
3	15	15	20
6	17	12	24

$\chi^2 = 3.03$; $p > .50$

Number of Deletions	Clark Neg - Both Neg	Clark Not Neg
0	31	10
3	35	15
6	36	17

$\chi^2 = <1$; $p > .80$

Number of Deletions	Clark Neg	Clark Neg - Both Neg
0	15	26
3	20	30
6	24	29

$\chi^2 = <1$; $p > .80$

Number of Deletions	Clark Neg	Clark Not Neg
0	15	10
3	20	15
6	24	17

$\chi^2 = <1$; $p > .75$

TABLE XXVII

Detecting Deception

Analysis of Variance of

Student Sample

Emotional Accuracy

by

Color/Black-and-White = COLOR BW
Visual and Audio/Visual Only = VISAUDIO
Head and Body/Head Only/Body Only = SHOT

(N=564)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	14.080	4	3.520	2.308	.056
COLORBW	4.352	1	4.352	2.828	.089
VISAUDIO	.512	1	.512	.324	.999
SHOT	7.296	2	4.608	3.025	.048
2-WAY INTERACTIONS	5.888	5	1.152	.772	.999
COLORBW VISAUDIO	.320	1	.320	.221	.999
COLORBW SHOT	3.136	2	1.600	1.034	.357
VISAUDIO SHOT	2.432	2	1.216	.801	.999
3-WAY INTERACTIONS	3.246	2	1.600	1.062	.347
COLORBW VISAUDIO SHOT	3.246	2	1.600	1.062	.347
RESIDUAL	843.712	552	1.536		
TOTAL	866.944	563	1.536		

TABLE XXVIII

Detecting Deception

Analysis of Variance of

Student Sample

Factual Accuracy

by

Color/Black-and-White = COLORBW
Visual and Audio/Visual Only = VISAUDIO
Head and Body/Head Only/Body Only = SHOT

(N=564)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	152.448	4	38.080	17.571	.001
COLORBW	1.920	1	1.920	.895	.999
VISAUDIO	133.824	1	133.824	61.706	.001
SHOT	19.648	2	9.856	4.532	.011
2-WAY INTERACTIONS	4.224	5	.832	.387	.999
COLORBW VISAUDIO	1.344	1	1.344	.632	.999
COLORBW SHOT	2.240	2	1.152	.521	.999
VISAUDIO SHOT	.576	2	.320	.140	.999
3-WAY INTERACTIONS	4.224	2	2.112	.980	.999
COLORBW VISAUDIO SHOT	4.224	2	2.112	.980	.999
RESIDUAL	1197.248	552	2.176		
TOTAL	1358.144	563	2.432		

TABLE XXIX

Detecting Deception

Analysis of Variance of

Student Sample

Total Accuracy

by

Color/Black-and-White = COLORBW
Visual and Audio/Visual Only = VISAUDIO
Head and Body/Head Only/Body Only = SHOT

(N=564)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	167.936	4	41.984	11.380	.001
COLORBW	12.032	1	12.047	3.266	.068
VISAUDIO	150.528	1	150.528	40.805	.001
SHOT	8.448	2	4.352	1.150	.317
2-WAY INTERACTIONS	14.592	5	2.816	.787	.999
COLORBW VISAUDIO	3.072	1	3.072	.831	.999
COLORBW SHOT	8.960	2	4.608	1.226	.294
VISAUDIO SHOT	2.304	2	1.024	.297	.999
3-WAY INTERACTIONS	7.424	2	3.840	1.011	.366
COLORBW VISAUDIO SHOT	7.424	2	3.840	1.011	.366
RESIDUAL	2037.248	552	3.584		
TOTAL	2227.200	563	3.840		

TABLE XXX

Detecting Deception

Analysis of Variance of

Adult Sample

Total Accuracy

by

Color/Black-and-White = COLOR BW
Head and Body/Head Only = SHOT

(N=193)

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS	7.424	2	3.840	.928	.999
COLORBW	7.424	1	7.424	1.848	.172
SHOT	.256	1	.256	.057	.999
2-WAY INTERACTIONS	4.864	1	4.864	1.199	.274
COLORBW SHOT	4.864	1	4.864	1.199	.274
RESIDUAL	765.952	189	4.096		
TOTAL	778.240	192	4.096		

workshop 3

thursday 7/24

Registration
Reception—Welcome
Introductions

friday 7/25

Brigham Young University
Trialvision/Depovision
Luncheon—Ernest Friesen
Michigan State University

saturday 7/26

U.S. Air Force
McGeorge School of Law
National Shorthand Reporters' Association
Buffet

sunday 7/27

General Session—NSF
Questions and Answers
Check-out

registration

Reservations for attending Legal Communication Workshop 3, July 24-27, 1975, Sheraton Plaza Hotel, Chicago, Illinois, may be made by completing the enclosed card and mailing it.

Registration Fee (includes Workshop 3 banquet functions) $40.00*

Accommodations—Single Room per night . . . $25.00 . . . . Double Room per night . . . $30.00

You will be billed at registration.

*Registration fee for students who can produce proof of current University enrollment will be $15.00.

NOTE: Reservation requests made after JULY 3, 1975, cannot be guaranteed.

SAMPLE WORKSHOP RETURN CARD

workshop 3

Please register me for Legal Communication Workshop 3, July 24-27, 1975, Sheraton Plaza Hotel (formerly the Westbury), 160 East Huron at St. Clair, Chicago, Illinois.

Name: ____________________ Student: ____ Yes ____ No
Address: ____________________
____
Single Room ($25.00 per night) ____________________
Double Room ($30.00 per night) ____________________
Workshop Attendee Sharing Double: ____________________
Address: ____________________
____

Note: You must return this card by JULY 3, 1975, to be guaranteed space. After that date, phone reservations will be accepted in limited numbers at (517) 355-3480.

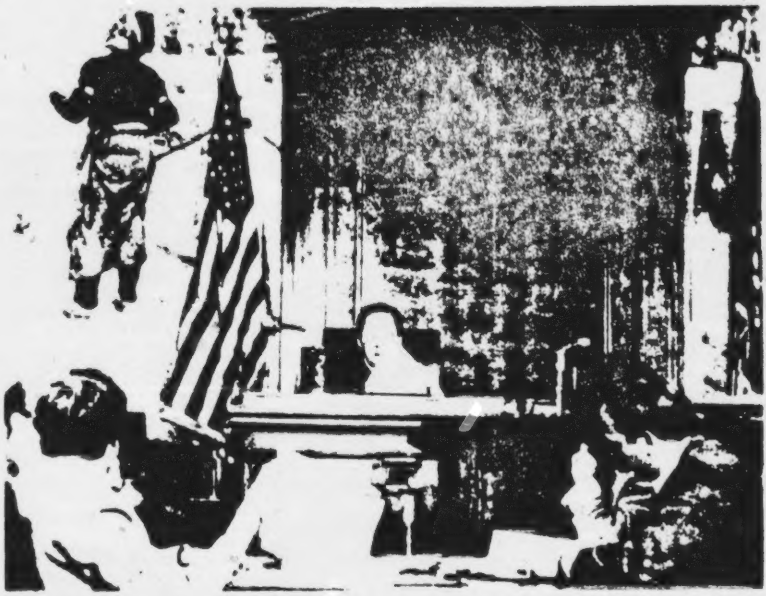
On this page and the following two are pages from a typical SCAN newsletter:

S Legal
Communication
A Research
N News

Department of Communication
College of Communication Arts
Michigan State University
East Lansing, Michigan 48824

Honorable Tom C. Clark
Justice-US Supreme Court (Ret)
2102 Connecticut Ave. N.W.
Washington, D.C. 20008

Second Legal
Communication
Workshop
Jan. 29-Feb. 1



Judge Dale A. Riker and other stimulus participants review notes prior to taping.

three persons comprises the Hastings contigent; Guy Kornblum, adjunct faculty, will discuss how attorneys can make the best use of videotape in their private practices; Gordon Bermant, Battelle Seattle Research Center, will draw from psychological studies on using television in the courtroom, and Paul Rush, Television Office, University of California-Berkeley, will discuss the use of television and videotape in legal education.

Clark Law School Multi-media Study

During the small group meetings on Saturday, February 1, workshop attendees will also have the opportunity to speak with representatives from the J. Reuben Clark Law School, Brigham Young University, Provo, Utah, on the multi-media courtroom studies they completed this year.

Please note that the return card enclosed in the workshop registration packet is sufficient to reserve your hotel room; there is no need to contact the hotels involved personally.

Phase Two Data Collection

The grant team has completed data collection for the last studies to be reported on at the second workshop. During November, the team traveled to Flint, Michigan, as it has for previous studies, to present the study stimulus to Circuit and District court jurors. This study was designed to measure juror

Program Includes Phase Two Report

The program for the second Legal Communication Workshop will include: (1) an examination of related videotape research dealing with legal education, (2) the practical applications of television technology in legal practice, (3) the impact of videotape use in criminal proceedings, and, (4) the report on the results of phase two of "Determining the Effects of Videotaped Testimony on Information Processing and Decision-Making in Jury Trials."

Courtroom of the Future

Besides providing a demonstration of its "Courtroom of the Future," the McGeorge School of Law, University of the Pacific, Sacramento, will report to workshop participants on its continuing research effort, which addresses three principal objectives: (1) to analyze the feasibility of applying videotape technology in criminal justice proceedings, (2) to identify operational procedures necessary for the implementation of videotape technology in criminal proceedings and, (3) to determine the behavioral effects of utilizing videotape in criminal proceedings on witnesses, attorneys and judges.

Hastings College Panel and Tour

Hastings College of Law, University of California, San Francisco, will offer to the workshop attendees both a tour of its facilities and a presentation on videotape use. A panel of

Audio engineer monitors sound levels during Phase II stimulus recording.

REFERENCES

Attneave, F. Some informational aspects of visual perception. *Psychological Review*, 1954, *61*, 183-193.

Bartlett, F. C. *Remembering*. London: Cambridge Press, 1932.

Behnke, R. R. An exploratory study of relationship between galvanic skin response and information-gain. Unpublished doctoral dissertation, Department of Speech Communication, University of Kansas, 1966.

Bem, D., & McConnell, H. Testing the self-perception explanation of dissonance phenomena: On the salience of premanipulation attitudes. *Journal of Personality and Social Psychology*, 1970, *14*, 23-31.

Berlo, D. K., Lemert, J. B., & Mertz, R. J. Dimensions for evaluating the acceptability of message sources. *Public Opinion Quarterly*, 1969-70, *30*, 563-576.

Berrien, F., & Huntington, G. An exploratory study of pupillary responses during deception. *Journal of Experimental Psychology*, 1943, *32*, 443-449.

Burke Marketing Research, Inc. *Burke color study*. Cincinnati, Ohio: Crosley Broadcasting Corporation, 1960.

Conrad, R. Acoustic confusions in immediate memory. *British Journal of Psychology*, 1964, *55*, 75-84.

Cutrow, R. J., Parks, A., Luscas, N., & Thomas, K. The objective use of multiple physiological indices in the detection of deception. *Psychophysiology*, 1972, *9*, 578-588.

Davis, R. Physiological responses as a means of evaluating information. In A. Biderman and H. Zimmer (eds.), *The Manipulation of Human Behavior*. New York: Wiley, 142-168, 1961.

Eisenberg, A., & Smith, R. *Nonverbal Communication*. New York: Bobbs-Merrill, 1971.

Ekman, P., & Friesen, W. V. The repertoire of nonverbal behavior: categories, origins, usage, and coding. *Semiotica*, 1969, *1*, 49-98.

Ekman, P., & Friesen, W. V. Nonverbal leakage and clues to deception. *Psychiatry*, 1969, *63*, 88-106.

Ekman, P., & Friesen, W. V. Hand movements. *Journal of Communication*, 1972, *22*, 353-374.

Ekman, P., & Friesen, W. V. Detecting deception from the body or face. *Journal of Personality and Social Psychology*, 1974, *29*, 288-298.

English, H. Reaction-time symptoms of deception. *American Journal of Psychology*, 1926, *37*, 428-429.

Farmers, E., & Chambers, E. G. Concerning the use of psychogalvanic reflex in psychological experiments. British Journal of Psychology. 1925, 15, 237-254.

Fay, P. J., & Middleton, W. C. The ability to judge truthtelling, or lying, from the voice as transmitted over a public address system. Journal of General Psychology, 1941, 24, 211-215.

Fisher, L. E., & Katses, H. Experimenter and subject sex effects in the skin conductance response. Psychophysiology, 1974, 11, 191-196.

Fontes, N. The behavioral impact of inadmissible evidence on jurors: A preliminary investigation. Unpublished doctoral dissertation, Department of Communication, Michigan State University, 1975.

Freedman, J. Role playing: Psychology by consensus. Journal of Personality and Social Psychology, 1969, 13, 107-114.

Gibson, J. J. The reproduction of visually perceived forms. Journal of Experimental Psychology, 1929, 12, 1-39.

Goldstein, E. R. Reaction times and the consciousness of deception. American Journal of Psychology, 1923, 34, 562-581.

Grubbs, F. E., & Beck, G. Extension of sample sizes and percentage points for significance tests of outlying observations. Technometrics, 1972. 14, 847-854.

Gustafson, L., and Orne, M. Effects of heightened motivation on the detection of deception. Journal of Applied Psychology, 1963, 47, 408-411.

Hildreth, R. An experimental study of audiences' ability to distinguish between sincere and insincere speeches. Unpublished doctoral dissertation, University of Southern California, 1953.

Hintzman, D. L. Classification and aural coding in short-term memory. Psychonomic Science, 1965, 3, 161-162.

Hintzman, D. L. Articulatory coding in short-term memory. Journal of Verbal Learning and Verbal Behavior, 1967, 6, 312-316.

Horvath, F. Verbal and nonverbal clues to truth and deception during polygraph examinations. Journal of Police Science and Administration, 1973, 1, 138-152.

Johnson, G. E. Application of skin resistance in psychophysical studies. U.S.A.F. WADC Technical Report, No. 59-688, 1959.

Kanner, J. H., & Rosenstein, A. J. Television in army training: Color vs. black and white. Part I. AV Communication Review, 1960, 8, 243-316. (a)

Kanner, J. H., & Rosenstein, A. J. Television in army training: Color vs. black and white. Part 2. AV Communication Review, 1960, 9, 44-49. (b)

Katzman, N. I., & Nyenhuis, J. Color versus black and white effects on learning, opinion, and attention. Unpublished manuscript, Departmant of Communication, Michigan State University, 1971.

Katzman, N. I. Violence and color television: What children of different ages learn. Unpublished manuscript, Department of Communication, Michigan State University, 1971.

Keele, S. W. *Attention and Human Performance*. Pacific Palisades, California: Goodyear Publishing Company, Inc., 1973.

Knapp, M. *Nonverbal Communication in Human Interaction*. New York: Holt Rinehart and Winston, Inc., 1972.

Knapp, M., Hart, R., & Dennis, H. An exploration of deception as a communication construct. *Human Communication Research*, 1974, *1*, 15-29.

Kumata, H. Two studies in classroon teaching. In W. Schramm (Ed.), *The Impact of Educational Television*. Urbana: University of Illinois Press, 1960, pp. 151-157.

Lange, D. L., Baker, R. K., & Ball, S. J. *Mass Media and Violence*. Vol. XI, A Report to the National Commission on the Causes and Prevention of Violence, November 1969.

Levine, J. M. & Murphy, G. The learning and forgetting of controversial material. *Journal of Abnormal and Social Psychology*, 1943, *38*, 507-517.

Maccoby, N., Jecker, J., Breitrose, H., & Rose, E. *Sound Film Recordings in Improving Classroom Communications*. Title VII Project 680, National Defense Education Act of 1958, Grant 7-14-1380-136.

Maier, N. Sensitivity to attempts at deception in an interview situation. *Personnel Psychology*, 1965, *19*, 55-65.

Maier, N., & Janzen, J. The reliability of persons used in making judgments of honesty and dishonesty. *Perceptual and Motor Skills*, 1967, *25*, 141-151.

Maier, N., & Thurber, J. Accuracy of judgments of deception when an interview is watched, heard, and read. *Personnel Psychology*, 1968, *21*, 23-30.

Malarazzo, J., Wiens, A., Jackson, R., & Janaugh, T. Interviewer speech behavior under conditions of endogenously present and exogenously-induced motivational states. *Journal of Clinical Psychology*, 1970, *26*, 141-148.

Marston, W. Reaction-time symptoms of deception. *Journal of Experimental Psychology*, 1920, *3*, 72-87.

McClintock, C., & Hunt, R. Nonverbal indicators of affect and deception in an interview setting. *Journal of Applied Social Psychology*, 1975, *5*, 54-67.

McCloskey, H. Conservatism and personality. *American Political Science Review*, 1958, *52*, 27-45.

McCrystal, J. Ohio's first videotape trial. *The Ohio Bar*, 1972, *45*, 1-4.

McCroskey, J. G. Scales for the measurement of ethos. *Speech Monographs*, 1966, *33*, 65-72.

McGuire, W. J. The nature of attitudes and attitude change. In G. Lindzey and E. Aronson (Eds.), *Handbook of social psychology*, Vol. 3. Reading, Mass.: Addison-Wesley, 1969, pp. 136-314.

McLuhan, M. *Understanding Media: The extensions of man*. New York: McGraw-Hill, 1964.

Mehrabian, A. Nonverbal betrayal of feelings. *Journal of Experimental Research in Personality*, 1971, *5*, 64-75.

Miller, N., & Campbell, D. T. Recency and primacy in persuasion as a function of the timing of speeches and measurement. *Journal of Abnormal and Social Psychology*, 1959, *59*, 1-9.

Miller, G. R. Televised trials: How do juries react? *Judicature*, 1974, *58*, 242-246.

Miller, G., and Burgoon, M. *New Techniques of Persuasion*. New York: Harper and Row, 1973.

Miller, G. R., Bender, D. C., Florence, B. T., & Nicholson, H. E. Real versus reel: What's the verdict? Journal of Communication, 1974, *24*, 99-111.

Miller, G. R., & Siebert, F. S. Effects of videotaped testimony on information retention and decision-making in jury trials. Progress Report 1, NSF RANN Grant # GI 38398, March , 1974.

Morrill, A. *Trial Diplomacy*. Chicago: Court Practice Institute, 1971.

Motley, M. Acoustic correlates of lies. *Western Speech*, 1974, *37*, 81-87.

Schachter, S. The interaction of cognitive and physiological determinants of emotional state. In L. Berkowitz (ed.), *Advances In Experimental Social Psychology*, Vol. 1. New York: Academic Press, 1964, pp. 49-80.

Peterson, L. R., & Peterson, M. J. Short-term retention of individual verbal items. *Journal of Experimental Psychology*, 1959, *58*, 193-198.

Posner, M. I. Rate of presentation and order of recall in immediate memory. *British Journal of Psychology*, 1964, *55*, 303-306.

Schacter, S., & Singer, J. E. Cognitive, social, and psychological determinants of emotional state. *Psychological Review*, 1962, *69*, 379-399.

Schachter, S., & Wheeler, L. Epinephrine, chlorpromazine, and amusement. *Journal of Abnormal and Social Psychology*, 1962, *65*, 121-128.

Schaps, E., & Guest, L. Some pros and cons or color TV. Journal of Advertising Research, 1968, 8, 28-39.

Shibutani, T. Improvised News: A Sociological Study of Rumor. Indianapolis: Bobbs-Merrill, 1966.

Shulman, G. An experimental study of the effects of receiver sex, communicator sex, and warning on the ability of receivers to detect deceptive communicators. Unpublished masters' thesis, Purdue University, 1973.

Singer, J. E. Symathic activation, drugs, and fear. Journal of Comparative Physiological Psychology, 1963, 56, 612-615.

Stanley, W. C., and Schlosberg, H. A simple test of the normality of twenty-four distributions of electrical skin conductance. Science, 1953, 117, 35-37.

Tannenbaum, P. H. Studies in film-and television-mediated arousal and aggression: A progress report. In G. Comstock, E. Rubinstein & J. Murray (Eds.), Television and Social Behavior, Vol. 5, DHEW Publication No. HSM72-9060, 1972.

Trovillo, P. A history of lie detection. Journal of Criminal Law and Criminology, 1939, 29, 848-881.

Vandermeer, A. W. Color vs. black and white in instructional films. AV Communication Review, 1954, 2, 121-134.

Wilson, G. D. Development and evaluation of the C-scale. In G. D. Wilson (Ed.), The Psychology of Conservatism. New York:, Academic Press, 1973, pp. 55-70.

Wolk, R., & Henley, A. The Right to Lie. New York: Wyden, 1970.

Zajonc, R. B. Social facilitation. In D. Cartwright & A. Zander (Eds.), Group Dynamics 3rd ed. New York: Harper & Row, 1968.